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AMERICAN GAS JOURNAL

Established 1859 Pioneer of the Gas Industry

Including · GAS INDUSTRY · Est. 1900 ·

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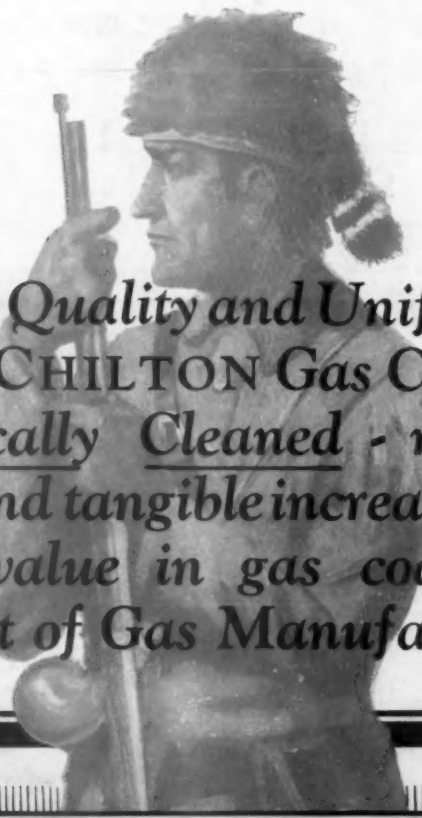

Improved Quality and Uniformity of BOONE-CHILTON *Gas Coals-now* Mechanically Cleaned *- represents definite and tangible increased value. Greater value in gas coal means lower cost of Gas Manufacture.*

BOONE-CHILTON
GAS COALS
WATER GAS · COAL GAS · BY-PRODUCT
BOONE COUNTY COAL CORP-PHILADELPHIA-CHICAGO

"Double the life of your METERS"

Experience in practice under a wide range of operating conditions has proven the value of Gas Dehydration as performed by the Koppers Patented Process.

Meter life is more than doubled—corrosion and its inevitable replacement cost is practically eliminated—service is better and far more satisfactory—operating costs are greatly reduced.

You will be interested in the comparative figures we will submit to you on this process.

THE WESTERN GAS CONSTRUCTION COMPANY
FORT WAYNE IND.
SUBSIDIARY OF THE KOPPERS COMPANY

AMERICAN
GAS JOURNAL
Established 1859 — *Pioneer of the Gas Industry*
Including GAS INDUSTRY Est. 1900

Executive and Editorial Offices, 53 Park Place, New York City

S. G. KRAKE, *President and Treasurer* — A. M. GLEASON, *Secretary*

H. M. RILEY, *Editor*

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Vol. 131, No. 2 — August, 1929 — Whole Number 3668

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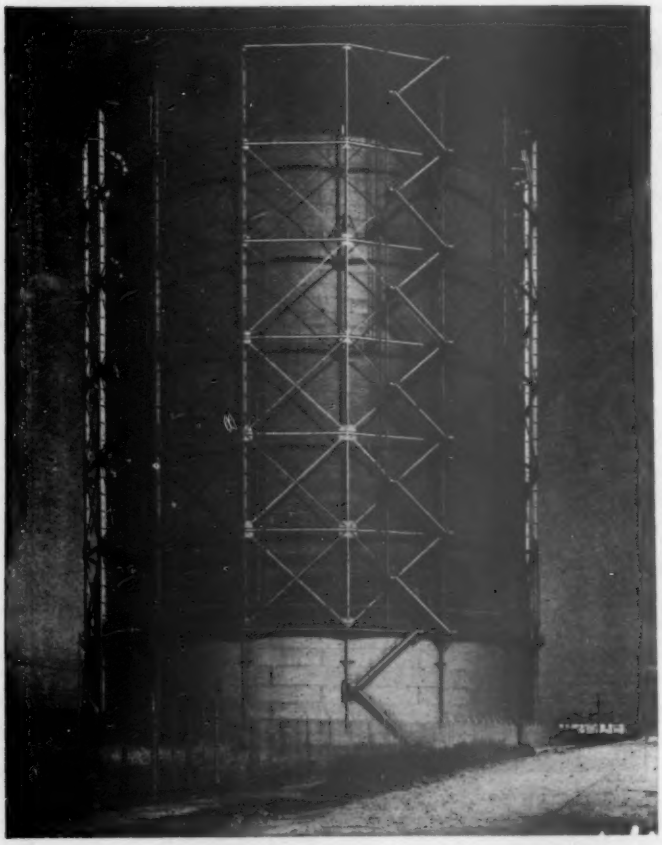
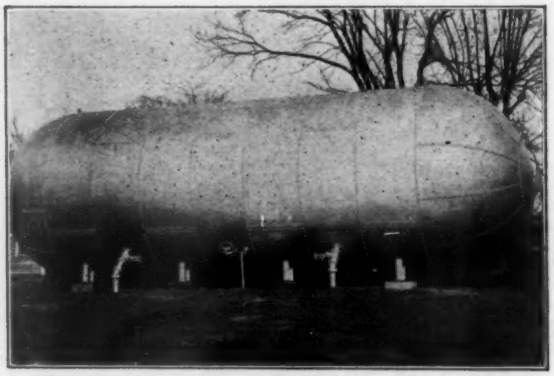


FOR HIGH AND LOW PRESSURE



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GAS STORAGE

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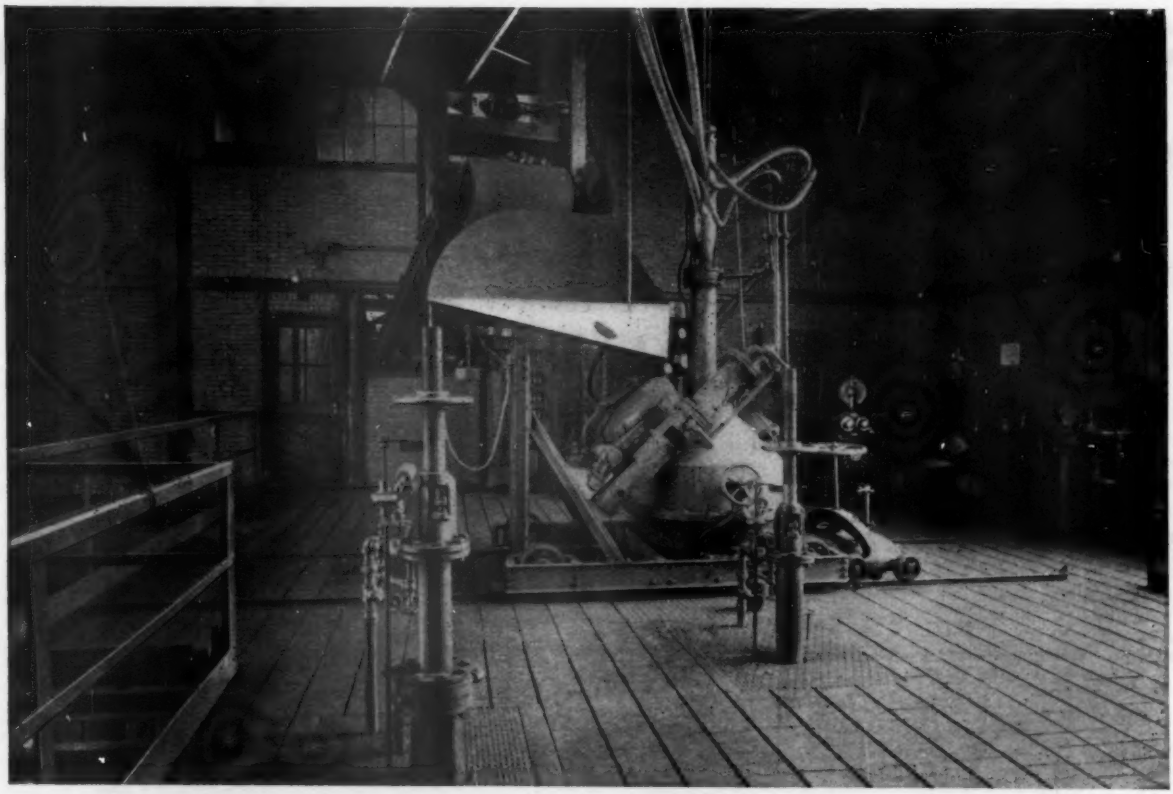

Patents applied for

STARTING OFF ON THE RIGHT FOOT

THE manufacture of gas begins far ahead of the generator or retort. The first real step is the careful selection and preparation of fuel. Correct fuel handling at every point is most essential to start the process "off on the right foot."

The charging machine illustrated shows the final step in ***Semet-Solvay Fuel Systems for water gas plants.*** This machine controls the movement of fuel from the hopper. It records the quantities supplied to the generator and deposits each charge precisely where needed to maintain a uniform fire bed. It is strongly built for long service and is tight against leakage and heat losses.

If your fuel handling is not giving the best possible results, we would be pleased to show you how profitably it can be modernized.

SEMET-SOLVAY
ENGINEERING CORPORATION
Division Allied Chemical and Dye Corp.
40 RECTOR ST. NEW YORK

SMOOT STEAM ACCUMULATOR

The SMOOT STEAM ACCUMULATOR at the Spring Gardens Plant, Consolidated Gas, Electric Light & Power Company of Baltimore

IN addition to a SMOOT STEAM ACCUMULATOR at the Spring Gardens Plant, the following systems of Smoot Control are in continuous operation:

SMOOT CONTROL OF COMBUSTION regulating the fuel and air from a MASTER CONTROLLER and maintaining uniform steam pressure and complete combustion in the boiler plant.

SMOOT CONTROL OF WATER GAS MACHINES regulating steam volume Primary and Secondary air to each set from a Master Controller.

SMOOT CONTROL at the Spring Gardens Plant Insures a Continuous Production of Gas Efficiently.

SMOOT ENGINEERING CORPORATION
136 Liberty Street New York

SMOOT CONTROL

PIER PROCESS

(Patented)

For the most efficient use of

100% BITUMINOUS COAL

IN

WATER GAS MANUFACTURE

This process makes it possible to secure
rated capacity with the use of
100% bituminous coal

THE INSTALLATION COST IS NOMINAL
COMPARED WITH THE SAVINGS

THE U. G. I. CONTRACTING COMPANY
DIVISION OF
UNITED ENGINEERS & CONSTRUCTORS
INCORPORATED
DWIGHT P. ROBINSON, PRESIDENT
Broad and Arch Streets, Philadelphia

Chicago New York

Making Gas *Profitably*

A definite way to realize a profit on your send-out, or to secure any profit whatsoev r, is to put gas in the holder at the minimum cost.

Therefore, the fundamental basis of profit begins with low cost production.

If you are not making gas profitably there must be a reason. It may be the method, or equipment, including maintenance and repairs, or excess labor costs; but until the cause is finally determined, no remedy can be applied that will produce satisfactory results.

This organization offers you the services of experts with an aggregate experience of a quarter century well versed in layout, design, construction and operating methods, each thoroughly familiar with his subject from practical experience, supplemented by abundant data gathered through years of study and accomplishment who will, we are confident, suggest remedies which can be intelligently applied where needed and will be most beneficial.

May We Help You Get the Better Results — the Profits?

Improved Equipment - Russell Engineering Corporation

Engineers—Builders

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CHICAGO

Dramatic Evidence
of the superior strength of deLavaud pipe

The above photograph was taken during a hydrostatic bursting test of deLavaud Pipe. Details below.

3,350 lbs. per square inch was the pressure required to burst the 6-inch deLavaud Pipe shown above. This pipe was selected at random from stock, placed in a special test press and submitted to tremendous water pressure from a force pump. Gauge readings were accurately checked.

When the pressure was first applied, the gauge needle moved up quickly to the 2,000 lb. mark. Thereafter it advanced more slowly to a reading of 3,350 lbs. per square inch—*a pressure reading fully 25% higher than could possibly be obtained with pit cast pipe designed for the same service.*

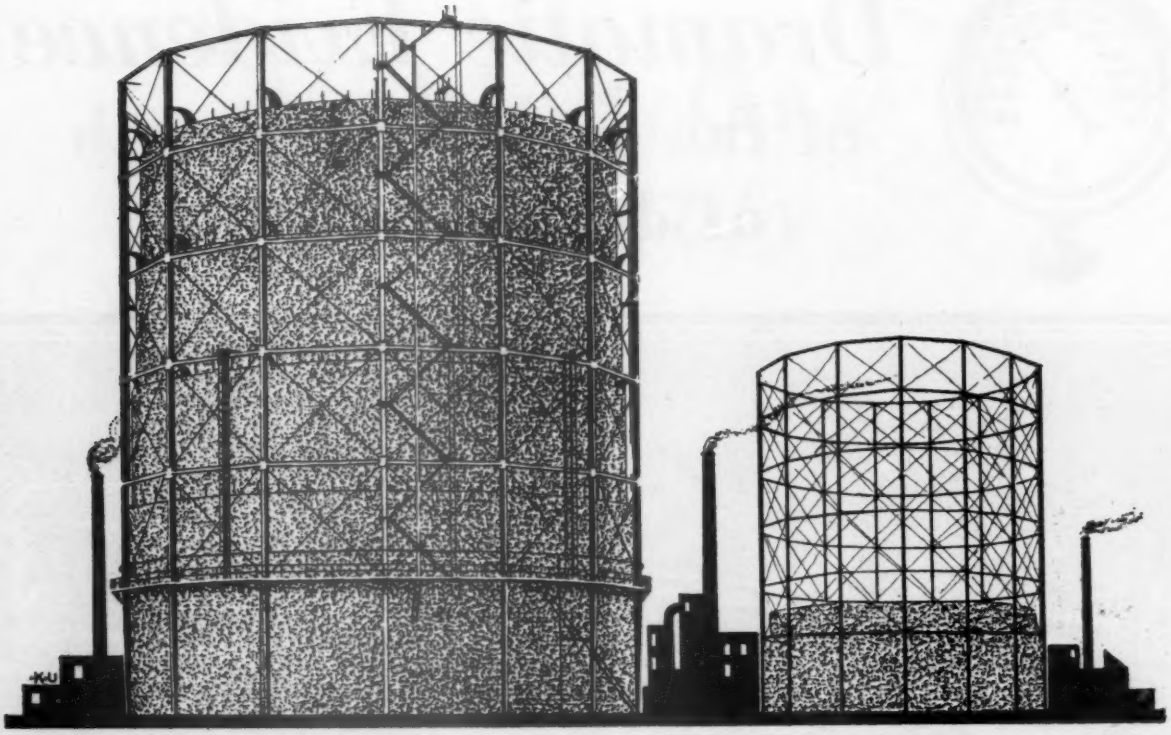
The remarkable strength of deLavaud Pipe is due to the dense, close grained structure of the metal, and to the metal's freedom from slag and blow holes. deLavaud Pipe is made by pouring molten iron into a rapidly revolving cylindrical mould. Centrifugal force holds metal against sides of mould, driving out impurities with a pressure resulting from a force *40 times greater than gravity.*

Also, the action of water-cooled deLavaud mould and the subsequent annealing further improve the physical properties and the microstructure of the metal. Let us send you the deLavaud handbook and all the facts about deLavaud Pipe.

Cast iron pipe made by this Company bears the "Q-check" trademark of The Cast Iron Pipe Research Association.

United States Pipe
and Foundry Co., Burlington, New Jersey

Sales Offices: **New York, Philadelphia, Pittsburgh, Cleveland, Buffalo, Chicago, Dallas, Birmingham, Kansas City, Minneapolis, Seattle, San Francisco, Los Angeles**



Ultimate Economy with a Gas Holder Must Be BUILT-IN!

FINAL construction and operating costs begin with the scientific analysis of the purchaser's needs, and extend through every step of design, manufacture and erection.

Every moment of care is a possible saving that will return to the purchaser in long years of low operating and maintenance cost.

When in the market for gas-storage equipment consult Cruse-Kemper with ultimate low-cost in mind.

CRUSE-KEMPER CO.

Ambler, Pa.

Design that Fits the Purpose

Highest Grade Materials

26 Years of Experience

When you check YOUR POWER COSTS

The economy of Connersville Blowers and Gas Pumps is evident

Power—necessary in some form to practically every industrial process — does not come before you in bulk so that you may weigh it on the scales or measure it by a rule, yet you have actual opportunities of checking your power costs and apportioning to each machine, its part of the power consumption. When you do this, the savings which Connersville Blowers and Gas Pumps can make for you become evident.

High volumetric efficiencies resulting, of course, in a greater per cent of the power being put to serviceable use, are possible in Connersville Blowers because of improved bearing designs, modern methods of applying power, and a high degree of accuracy in workmanship in the machining and assembling of parts, as well as the inherent positive characteristic.

In gas plants, large smelters, in pneumatic conveying systems, in chemical works, in foundries and steel mills, in paper mills and oil refineries, this characteristic of Connersville Blowers has been demonstrated in a practical manner for years.

You should have the benefit of this saving, too. Ask our nearest office about it.

THE CONNERSVILLE BLOWER COMPANY

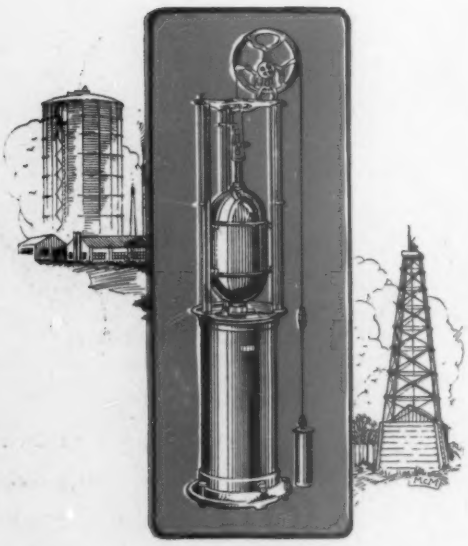
12th St. & Columbia Ave. ***Connersville, Indiana, U. S. A.***

53 W. Jackson Blvd. Chicago — Chamber of Commerce Bldg. Pittsburgh — 114 Liberty St. New York

CONNERSVILLE

Blowers • Gas Pumps • Meters • Cycloidal Pumps

KNOWN FACTORS CUBIC FEET IN METER VALUE



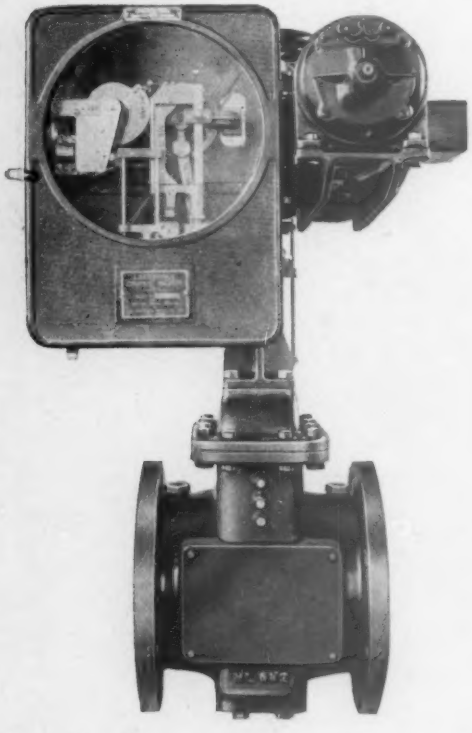
The Higher Standard

In Gas Meters, enduring accuracy, quality con struction and time-tested improvements are the essence of value.

There can be no economic justification for "good enough" or experimentation in the volume buying of such important long-term equipment.

For that reason, the vast majority of Gas Companies are guided solely by considerations of *true economy* in the purchase of Gas Meters.

LARGE VOLUME MEASUREMENT
LINDERMAN METERS



AMERICAN METER COMPANY
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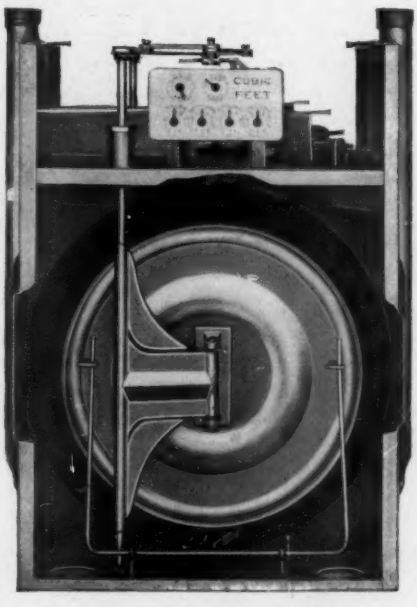
HELME & MCILHENNY
MARYLAND METER WORKS
D. MCDONALD & COMPANY
METRIC METAL WORKS
NATHANIEL TUFTS METER WORKS
PACIFIC METER WORKS

AMERICAN METER CO. MEASUREMENT ENGINEERS CUBIC FEET

A-TYPE METERS
Tinned Steel Case



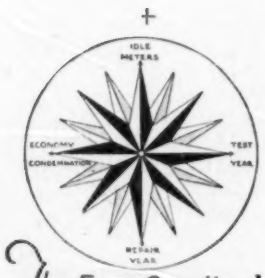
KNOWN FACTORS CUBIC FEET IN METER VALUE

In Meter Equipment

American Meter Company Gas Meters are unsurpassed in all the advantages that make for *true economy:*

Up-to-date quality, ample capacity, and an unmatched record for accurate and reliable performance, distinguish every type and model.

Long experience, nation-wide service facilities, manufacturing integrity—in fact all the qualifications that have brought world leadership in Gas Measurement Engineering—distinguish the manufacturer.



The Four Cardinal Points—a guide to effective Meter Maintenance or larger returns on Meter Investment

AMERICAN METER COMPANY

INCORPORATED

The World's Largest Manufacturers of Gas Meters and Allied Apparatus

ESTABLISHED 1836

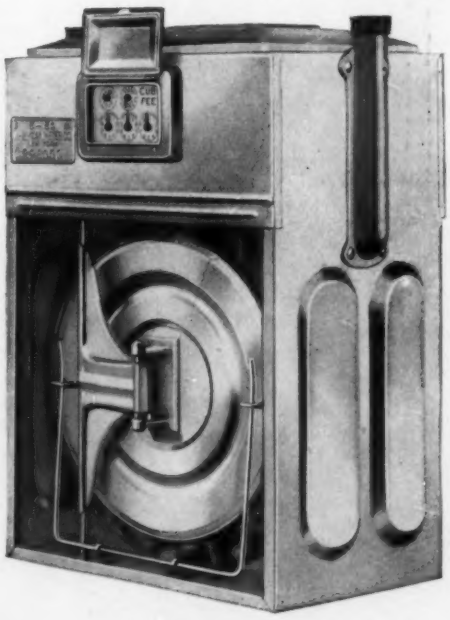
General Offices: 105 West 40th Street, New York City

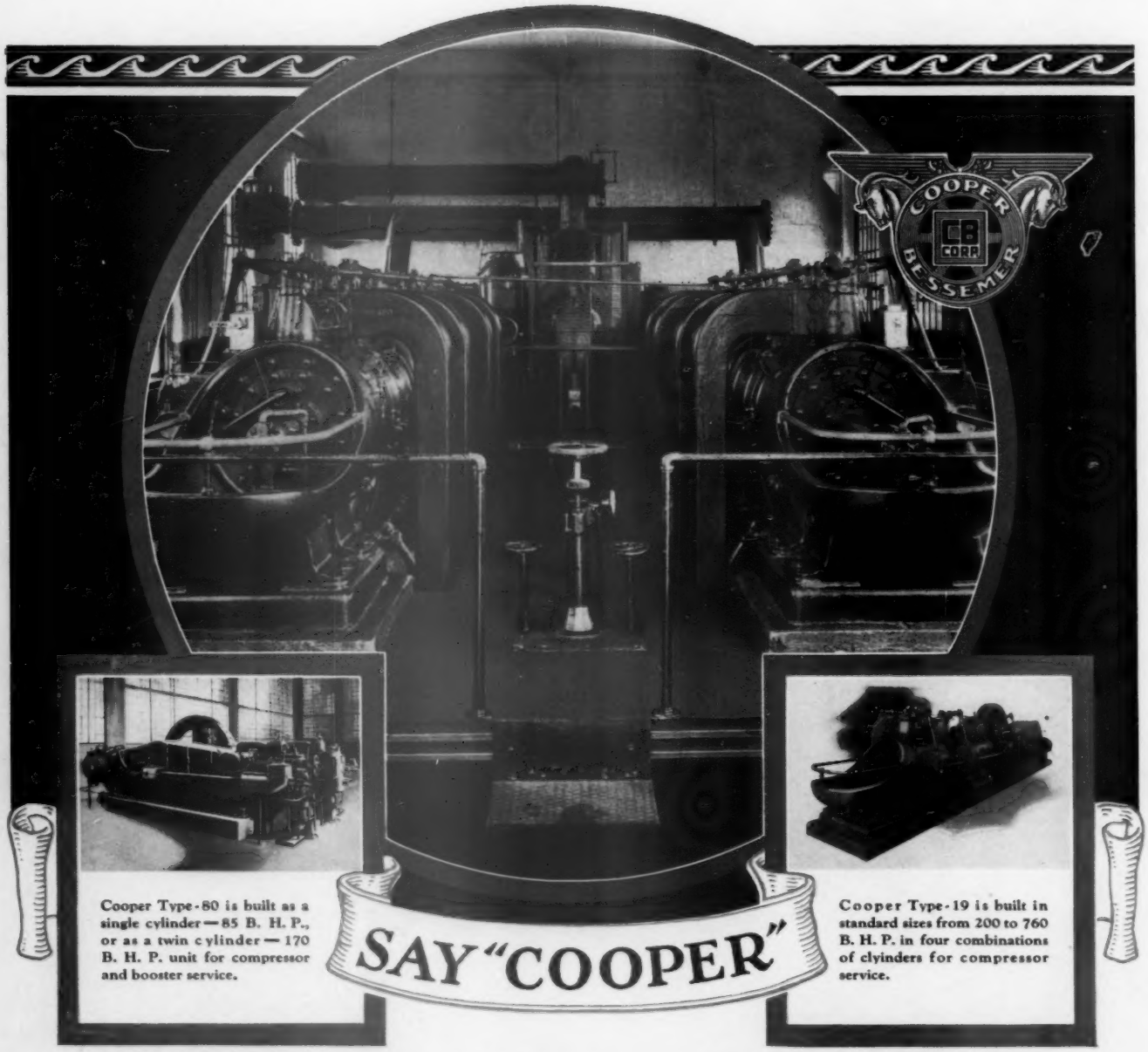
IRON CASE METERS

For Low, Medium, and High Pressures

B-TYPE METERS

Tinned Steel Case





Cooper Type-80 is built as a single cylinder—85 B. H. P., or as a twin cylinder—170 B. H. P. unit for compressor and booster service.

Cooper Type-19 is built in standard sizes from 200 to 760 B. H. P. in four combinations of clyinders for compressor service.

AND GET LOW COST COMPRESSOR SERVICE

THE units shown above are twin tandem 760 B. H. P. 4-cycle Cooper Gas Engines, direct-driving compressor cylinders in a manufactured gas plant.

If you're now maintaining a steam plant for a maximum capacity which is used only a few hours per day, or if you're paying a maximum demand rate for electricity under the same working condition, a Cooper Engine can save you money.

When a Cooper Engine is idle, its operating cost is nothing. When it goes to work, its over-all economy is unapproached by any other prime mover. It is always easy to start, easy to keep on the load. *Write for performance records of these sturdy, reliable engines in compressor service.*

THE COOPER-BESSEMER CORPORATION
FORMERLY
THE C. & G. COOPER COMPANY — THE BESSEMER GAS ENGINE COMPANY
MOUNT VERNON, OHIO — PLANTS — GROVE CITY, PENNSYLVANIA

COOPER

Positive *and* Economical Treatment of Tar Emulsions

APPARATUS

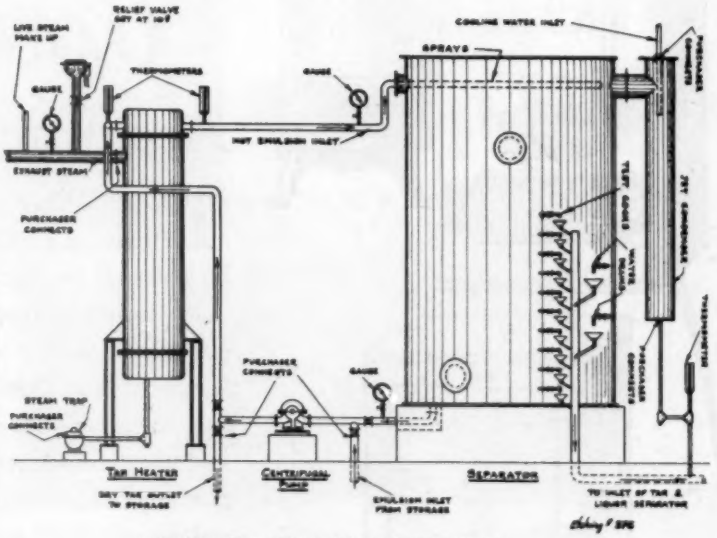
1— Separating Tank which contains Emulsions to be treated.

2— A circulating pump.

3— A heat exchanger using exhaust steam.

4— Separating sprays in top of separating tank.

5— A small Jet Condenser for condensing small amounts of light oil and water vapor.



KLEINMAN TAR DEHYDRATOR – ILLUSTRATIVE.
PATENT APPLIED FOR.

PROCESS

1—Pumping to a pressure which gives 5 pounds per square inch at the spray nozzles.

2—Heating Emulsion to about 220° F.

3—Emulsion leaves sprays reducing the pressure causing some of the water to flash into steam which breaks up the emulsion *without foaming.*

4—Mechanical separation in the separating tank.

5—Drawing off separated water.

6—Drawing off tar to dry tar Storage.

RESULT

A dry tar containing about 1% moisture.

Low Operating Costs

Send for full details of design and operation of this Positive and Economical Process.

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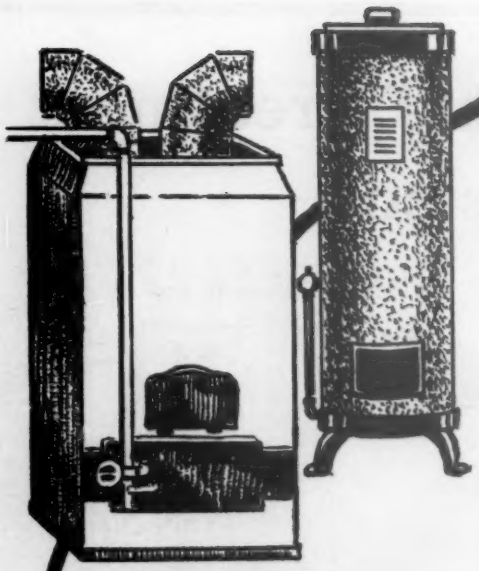
CLEVELAND, OHIO

New York Office 812 Graybar Building

E. E. Witherby, Eastern Representative



Reynolds

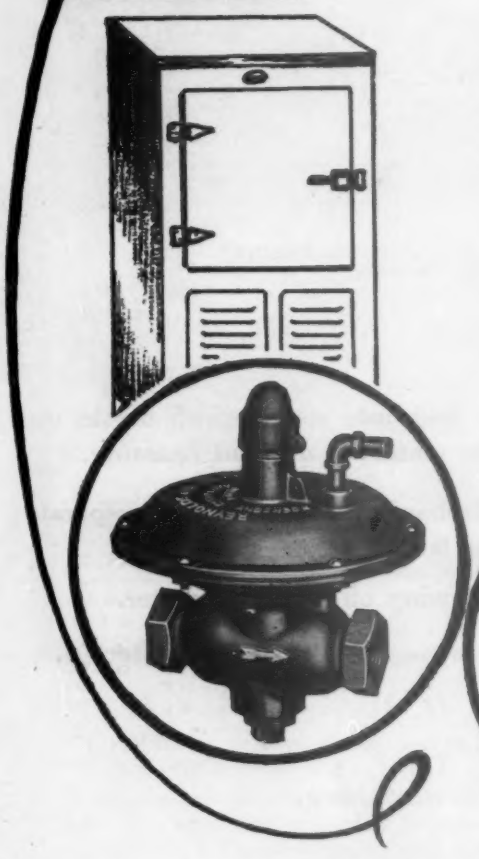
Low Pressure Gas Control

Accurate · Efficient · Durable

THE REALIZATION of today's needs in the Low Pressure Field is the reason Reynolds Low Pressure Regulators are far ahead of competition.

Reynolds engineers in their design of these units have combined the three essentials of Gas Control—Accuracy, Efficiency and Durability—and, at the same time, have kept the characteristics of Reynolds units—operating simplicity and absolute dependability.

Many manufacturers have found it profitable to add this unit as standard equipment. This Regulator, operating on an inlet pressure of one pound or more, will work from one-half inch to six inches outlet pressure. Our staff will be glad to cooperate. Write.



Reynolds Products

for all kinds of Pressure Reduction—for either artificial or natural gas.

Governors—
- Intermediate Pressure
- Triple Outlet
- Holder
- Toggle Type Street

Regulators—
- High Pressure Service
- Low Pressure Service
- Intermediate Pressure
- High Pressure Line
- Single and Double District Station

Valve—
- Automatic Quick-Closing
- Anti-Vacuum

Reynolds Gas Regulator Company
Anderson, Indiana

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F. E. NEWBERRY
Avon, N. J.

RECOGNIZED LEADERSHIP IN GAS CONTROL SINCE 1892

"FOR EVERY JOINT ON THE LINE"

8" crude oil line, Pampa, Texas. 12 men working 8 hours a day laid 3 miles and 800 feet with 8 road crossings where they buried the line.

Victaulic Couplings

6" Victaulic-coupled cast iron pipe for Outdoor Plunge of the New Biltmore Hotel, Santa Barbara, Calif.

6"-8"-12" — Casing Head Gas gathering lines—Berger Field Texas—all Victaulic-coupled.

TOWING a Victaulic-coupled line out to sea for a salt water supply for a hotel plunge—dragging a line across a river—or dropping several lengths coupled together into a ditch—do not harm lines connected with Victaulic Couplings. Laid faster—and by unskilled labor—over uneven ground, in a trench or under water—Victaulic-coupled lines are automatically leak-proof—and stay leak-proof even when the line sags or is shifted under full working pressure.

Every joint has high tensile strength and considerable flexibility. The Victaulic Coupling is an expansion joint for the pipe lengths it connects. The line is strain-free for a wide range of temperature variations.

Victaulic Couplings and Fittings are available for pipe sizes from ¾ inch up for steel, wrought iron, spiral weld and cast iron pipe—for all pressures.

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VICTAULIC COMPANY OF AMERICA

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The all-purpose coupling

"For every joint on the line"

FLEXIBLE LEAK-PROOF
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REG. U.S. PAT. OFF.
PIPE COUPLINGS

For detailed information on uses, users, installations, sizes, prices—write or mail this coupon.

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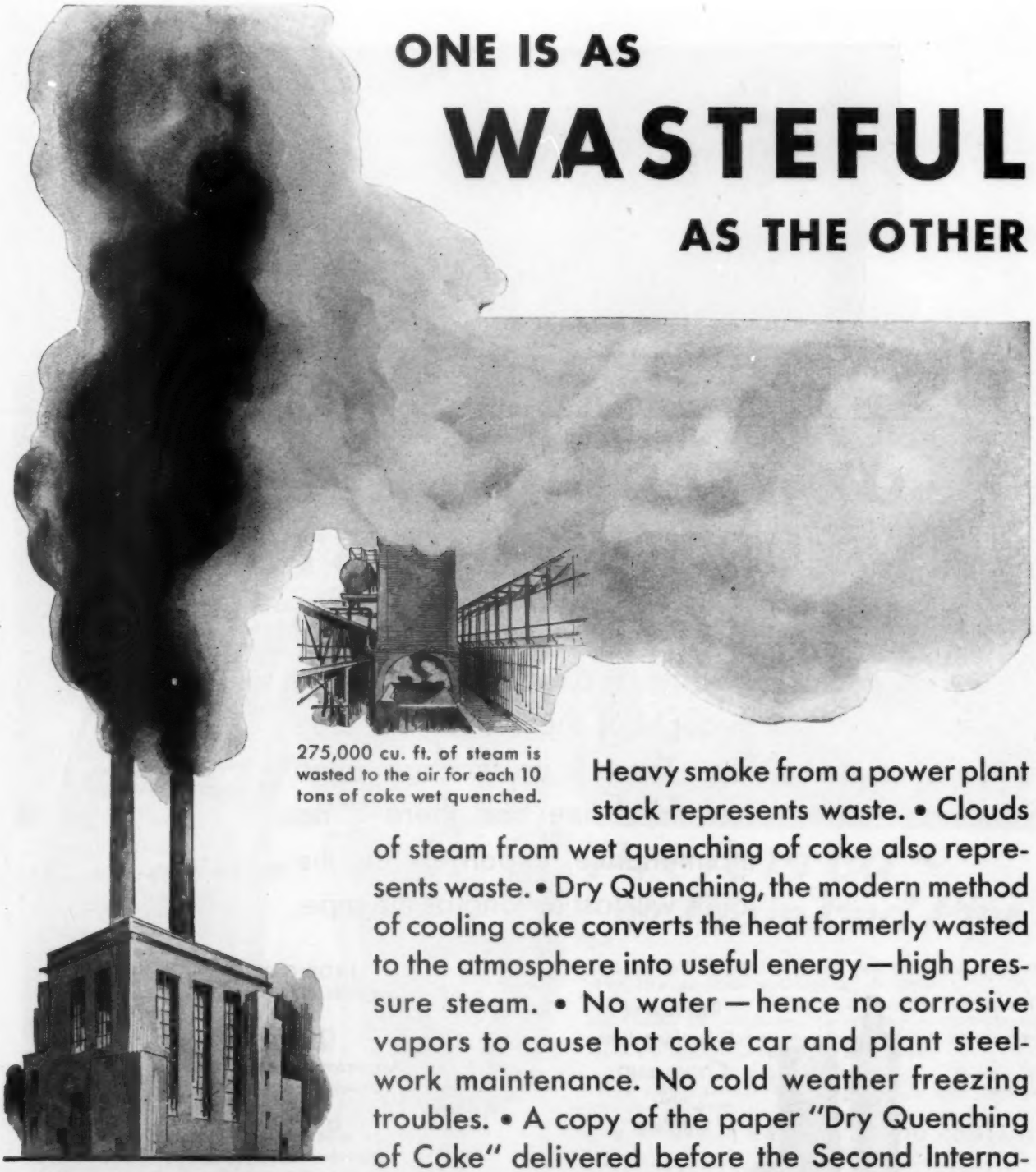
FOR CRUDE OIL, GAS, WATER, SEWAGE, COMPRESSED AIR, ETC.

FOR SEVENTY YEARS ROOTS BLOWERS HAVE EXCELLED AT THEIR JOB OF GIVING A CONSTANT VOLUME OF AIR—POSITIVELY DELIVERED. FOR ALL TIME TO COME THEY WILL STILL BE GIVING MAXIMUM SERVICE AND SATISFACTION TO THEIR USERS.
ROOTS Rotary
BLOWERS GAS PUMPS METERS
BOOSTERS EXHAUSTERS GOVERNORS
LOBE PUMPS VACUUM PUMPS COUPLINGS
ROOTS TYPE BLAST GATES SWING GATES
PRODUCTS
"Roots Users Root for Roots"
The P.H. & F.M. ROOTS CO.
CHICAGO Peoples Gas Building
CONNERSVILLE, INDIANA
NEW YORK 120 Liberty Street

ONE IS AS WASTEFUL AS THE OTHER



275,000 cu. ft. of steam is wasted to the air for each 10 tons of coke wet quenched.

10,000 lb. of high pressure steam could be produced from this waste by Dry Quenching.

Heavy smoke from a power plant stack represents waste. • Clouds of steam from wet quenching of coke also represents waste. • Dry Quenching, the modern method of cooling coke converts the heat formerly wasted to the atmosphere into useful energy—high pressure steam. • No water—hence no corrosive vapors to cause hot coke car and plant steelwork maintenance. No cold weather freezing troubles. • A copy of the paper "Dry Quenching of Coke" delivered before the Second International Conference on Bituminous coal will be sent to those interested in Dry Quenching.

DRY QUENCHING EQUIPMENT CORPORATION

International Combustion Building • 200 Madison Ave., New York

A SUBSIDIARY OF INTERNATIONAL COMBUSTION ENGINEERING CORPORATION

OXWELDING REDUCES UP-KEEP COSTS

THE economies of Oxwelded construction continue throughout the life of the pipe line. There is no leakage in an oxwelded line and there is no maintenance expense, for the joints will last as long as the pipe.

The Best of Everything for OXWELDING AND CUTTING

LINDE OXYGEN
The Linde Air Products Co.

Oxweld
Apparatus and Supplies
Oxweld Acetylene Co.

Prest-O-Lite
Dissolved Acetylene
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Units of
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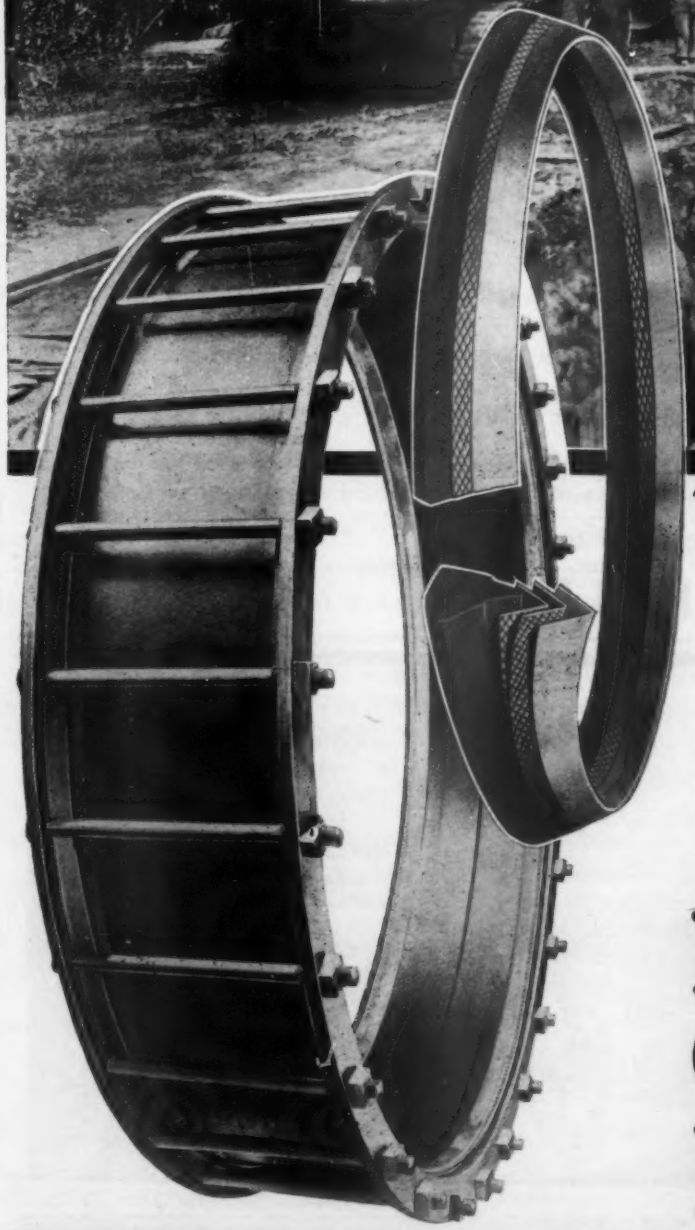
General Offices
30 East 42nd St., New York, N. Y.

UCC

Sales Offices
In principal cities of the country

64 Linde Plants—45 Prest-O-Lite Plants—154 Oxygen Warehouse Stocks—138 Acetylene Warehouse Stocks—38 Apparatus Warehouse Stocks—235 Carbide Warehouse Stocks



Preferred ~ for Plain End Pipe

A typical 48" plain end cast iron pipe line connected with Dresser Style 38 Couplings throughout.

Dresser Coupled pipe lines will remain permanently tight under all conditions. As evidence of their absolute tightness, would quote complete telegram just received from a Natural Gas customer, as follows:

"Three hundred mile line, including 16, 18 and 22", tested at 400 pounds without one single case Coupling trouble. Congratulations."

S. R. DRESSER MANUFACTURING COMPANY,
Bradford, Penna.

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THE BARTLETT HAYWARD COMPANY

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B. H. Co. Vertical Centrifugal Scrubbers
(Feld Type)

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Steel Tanks

Vertical Waste Heat Boilers

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(Patent Applied For)

Fast's Flexible Couplings

GAS HOLDERS

THE BARTLETT HAYWARD COMPANY'S MAIN PLANT

AMERICAN
GAS JOURNAL
Established 1859 Pioneer of the Gas Industry
Including GAS INDUSTRY Est. 1900

HENRY M. RILEY, Editor

Timid Capital

IN AN ADDRESS given before the Fifth General Congress, International Chamber of Commerce, Mr. Julius H. Barnes said: "Capital is properly timid, unless there is assurance of a fair field and the stimulant of reasonably expected profits. Capital is not a lifeless thing, but an agency directed in the last analysis by the individual, and that individual, by observation and judgment, made either fearless or timid."

Assuming that the capital of any business or industry is made up of the brains of the employees, as well as money, machinery and other component parts, it can be appreciated that willingness of the individual to assume responsibility, to push a project he believes is fundamentally sound and to investigate new methods constitutes a fairly accurate index of the success of the particular business. In short, this willingness might be expressed by the term, fearless capital.

Speaking of brain power, capital is timid when it carefully works out a new scheme for bettering gas production, for example, and then nonchalantly files it away for a more auspicious time. This type of capital usually trumpets an, "Oh! I worked out that plan—on paper—ages ago," when one of more hardy fibre actually puts it to work in practice. Capital is timid when it agrees that gas refrigeration, house heating, incineration, laundry equipment and the like are fine things for the industry and then sits back to see what the other fellow is going to do about it. Often, during this period of watchful waiting, the manufacturer tires and seeks an outlet for his wares in the fearless local appliance store or special agency. Capital is timid when it clarions an "all-gas home for the customer" and defers to the future an all-gas home for itself.

Timid brain capital is obviously an unwanted asset in the gas industry. It is often reflected in a particular company's failure to reap a due return on its invested money capital. It is a negative promoter of confidence and good-will between the utility and the customer and is vulnerable to devastating competition. Careful selection of employees, a generous and honest invitation to them to evolve and present new ideas and lastly, material recognition of the working out of ideas will cause our timid brain capital to shrink and our industry to fearlessly forge ahead.

Gas Range Possibilities

COMPARED WITH its status twenty years ago home architecture in this country seems to be following more logical lines; that is, home architecture which is concerned with that type and price of house that offers an immediate field for the "all gas home." Gone are the scroll saw abominations of former years and the uninviting square or box type of houses which followed in their wake.

Despite the strenuous efforts to introduce the modernistic home it is likely that we will adhere closely to the English, American Colonial, Spanish and other proven types of home architecture. These have weathered the test of time and have measured up to the requirements of beauty and livability.

Coincident with this development has come a painstaking study of the correct furnishing and interior decoration of the home. And, what with the widespread and easily obtainable literature and information on the subject, the veriest tyro can keep posted as to the proper decorative scheme.

Gas men are giving enthusiastic attention to the beautification of the home insofar as their appliances enter into the scheme of affairs. Thus, for example, the customer can be accurately advised as to the proper type of gas fire-place heater to harmonize with a particular style of home architecture and interior decoration. In this connection the appliance manufacture has intelligently worked out the correct design without the least sacrifice in utility.

An architect acquaintance recently raised the question as to why the gas range could not be made to follow a certain architectural scheme. To be specific, he assumed a home of Dutch architecture. Then he speculated on the feasibility of a gas range being built into the kitchen. Such a range would be resplendent with tiling and would simulate, in a sense, a Dutch oven. For other types of architecture a similar course could be pursued.

Offhand, it would seem that the suggestion might have possibilities and indeed, might greatly assist in the sale of a house. From the standpoint of the range manufacturer there might be serious obstacles in the way of carrying out the project. However, stranger things have happened, when one calls to mind that the manufacturer,—who has done more than his share in developing the gas business,—is a veteran in accomplishment, although his business scarcely numbers more than thirty years of life.

What's in a Name?

MANY OF US at times picture a number of men crowded into a none-too-well ventilated railway coach and bound for a rather laborious occupation when we hear the term "employment manager" used. In other words, we visualize a dealer in so many head of humans. Fortunately, this idea is in many cases over-stressed in our minds. Business in general more and more realizes the need for the proper man, regardless of the position to be filled, and accordingly the employment manager occupies a very important niche in the scheme of affairs. After all, he does or should know more about men and their traits than anyone else in his company.

Assuming the latter statement to be essentially correct, we wonder whether many companies are availing themselves of the employment manager's full possibilities. Let us change this individual's title to Director of Personnel—we might even style him Vice-President, in charge of Personnel—and delve into those activities and duties which the new title could encompass.

The Director of Personnel, after being apprized of the desire of a certain department for a particular type of employee, would arrange as heretofore to fill the need. Thereupon it would appear logical for him to exercise some sort of detached control over the newcomer and to keep a record of his progress.

This detached control could include medical attention, company social activities and any other factors of a welfare nature. In other words, the Personnel Director would not only engage the services of the employee but he would see to it that the latter would be working under conditions most conducive to the betterment of the company and himself.

As far as keeping a record of the employee's progress is concerned this would assume that the Director of Personnel would be kept up-to-date on the status and value of every employee below a predetermined rank in the organization. In short, he would know a good deal of the employee and his career, virtually from the Employee Application Blank to the Pension Certificate.

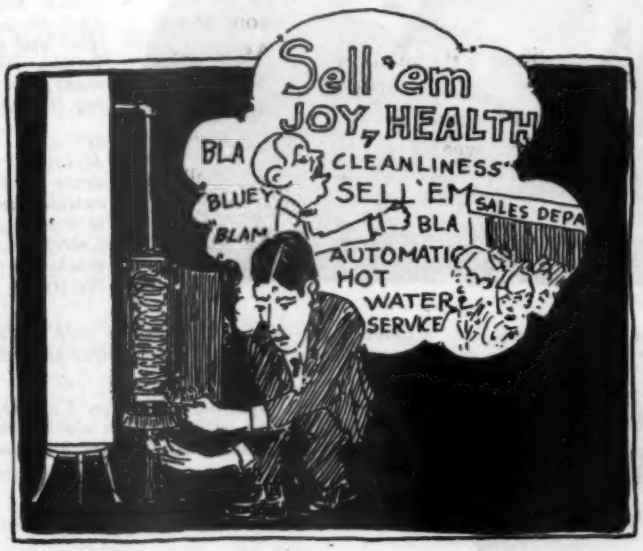
Including the gas business many lines of endeavor are vesting their employment managers with duties far surpassing the original intent of the position. Generally speaking, the plan works well and is worthy of earnest study on the part of all.

Educational Cooperation

THERE IS SUFFICIENT overlapping of the work carried on by the plumber and the gas company to warrant each having more than a passing knowledge of the other's business. Much has been said relative to the desirability of the plumber and appliance man becoming more familiar with gas and its correct utilization. This work is in order but, on the other hand, it would appear that our own fitters might profit considerably by way of learning something of the heating and plumbing business.

The plumbing and heating businesses muster a considerable number of men who are experts when it comes to work on water piping, heating installations, flues and the like. We refer to the type capable of mathematically figuring out a job on paper and subsequently proving their calculations in the actual finished installation. Accordingly, a number of gas men could well afford to glean some information from these men.

In every reasonably large community the plumbers and heating men hold meetings throughout the year and in many cases these meetings discuss subjects which touch upon the points the gas man should become better posted on. Hence, the proper person in the gas company could suggest that he be notified of these meetings and the topics to be discussed and he could detail certain of his men to attend the meetings.



Picture of a Gas Man Taking His Own Medicine

From the standpoint of the plumber and heating man learning something of the gas business many gas companies might consider the feasibility of establishing a course of six classes or lectures during the winter which would cater particularly to the plumber and heating man. Obviously this course would dispense information and data about gas and its utilization which we are most desirous of their knowing. At the end of the course it might be desirable to distribute an inexpensive handbook containing a summarization of the points touched upon. Indeed, a neat certificate might be issued stating that John Doe had attended all the classes or lectures.

Educational cooperation between the plumber and the gas company appears highly desirable but it should work both ways and not be lopsided.

Don't Guess

MORE AND MORE we are leaning on exact figures and data in pushing our industry to the fore. Particularly is this true when considering the technical phases. The man in the technical end of the gas business who "estimates"— polite way of saying "guesses"—is very properly becoming extinct.

Not so long ago there were scarcely a handful of gas production men who could, for example, accurately calculate the heat balance on a water-gas set. An endothermic or exothermic reaction was as abstruse and mysterious as the theory of relativity. However, we now find a different condition. Men are being fed directly into the gas industry from the various technical institutions well grounded in these and other necessary calculations.

Also in the not remote past, mains and pipe lines were determined as to size and capacity in a manner strongly influenced by the guessing method. Now the distribution engineer arranges his given data and facts and proceeds in an orderly mathematical manner to calculate the exact size of main required to meet the conditions.

Guessing has undeniably demanded and collected its price in the past. Happily, we are increasingly eliminating the payment of such premium. Nearly all of our problems, regardless, are amenable to mathematical solution and the industry demands men having such capability. They are paying premiums for brains instead of premiums for guessing and the balance is in favor of the industry and the employee alike.

The gas industry has neither patience nor place for the guesser. Don't guess!

Convention Eligibles

THE COMING A. G. A. Convention at Atlantic City bids fair to be the most successful meeting of gas men both from the standpoint of exhibits and the number in attendance.

Naturally, a great many executives, engineers, superintendents, commercial managers and other key men will be on hand. In this connection we would advance the thought that perhaps it might be worth while for some of the larger companies to consider the advisability of sending some of their employees who, for the time being, happen to rank very far down the line. Such a procedure would assuredly have inspirational value.

One can fancy the heartening effect of twenty-five or thirty old "gas house terriers," for instance, being treated to a trip to the Convention.

Work on the 300 Mile Pipe Line Bringing Natural Gas to San Francisco

Left—Welders at work.

Middle Right—Caterpillar tractor pulling 1500 lb. sections of pipe up steep hills near San Franciso. Two tractors speeded up this job at the time this picture was made; the one not shown was backfilling the pipe, working on a steep hillside.

Middle Left—Tractor with Killefer bulldozer backfilling Natural Gas line just outside San Francisco. In the background is a view of the terrain over which two Caterpillars worked—placing the pipe and machinery used on the job and backfilling the trench after the pipe was lain.

Lower Left—Caterpillar tractor with Killefer bulldozer backfilling after the pipes were laid.

Lower Right—Spotting of 14-ton Compression on truck to the highest ridges frequently calls for team work in which a pair of tractors work ahead and behind the truck to insure its getting there.

Cement Covering Produces Everlasting Service Pipe

Practice of New Orleans company shows long-time economy of novel method for covering service pipe

By A. E. Merchant,

General Superintendent, Gas Department, New Orleans Public Services, Inc.

PRIOR to 1901, the gas services in New Orleans were lead, laid in grooved cypress lumber in order to make them sufficiently rigid to hold the grade. This type of service is practically everlasting. In the early part of the year 1901, Mr. Bankson Taylor took charge of the gas company here and changed the type of services to black pipe coated with tar, claiming that lead laid in grooved cypress was too expensive. This coating was done in the yard at the gas plant by dipping, and after the service was laid, the bare parts at the joints were painted with a plastic tar at atmospheric temperature.

In the early part of 1903, Mr. Thomas D. Miller became manager of the gas property here. At about that time, the tar covered services started giving trouble by rusting out, so during the middle of 1903, Mr. Miller, at the suggestion of our Mr. H. Palm, who is now Superintendent of the Mains and Service Department of the New Orleans Public Service, Inc., began experimenting with black iron services laid in Portland cement. The early experiments with these cement covered services showed that they could be laid at a reasonable cost, and observations of other underground iron laid in cement indicated a much longer, if not permanent life. The tar covered services continued giving trouble and in increasing numbers, so in September of 1904, the type of services were changed to black iron laid in cement and this type of service has been continued to the present writing.

Good Results Obtained

We have obtained exceedingly good results from this service. Where the cement coating was done properly, we find services in perfect condition after twenty-five years in the ground. Obviously a great deal of care must be exercised to be sure that the pipe is properly covered at all places. We have had some service leaks and invariably we find that the cement coating was not done properly or that some other company, in running an underground line across our service, had broken the concrete from the service. We have also found from our long experience with gas services that, practically speaking, galvanized pipe is no better than plain black pipe which we use exclusively in cement covered services. Of course, we use galvanized pipe exclusively when the pipe is above ground, such as risers. The soil in the majority of places in our city is slightly alkali, and it seems that shortly after a plain black iron or galvanized iron pipe is placed in the ground, that galvanic action sets in and eats the pipe out very fast. The cement coating, however, seems to absolutely resist both galvanic action and soil corrosion.

Electrolysis Data

Most cities have trouble from electrolysis and we are no exception, though we have apparently had very little trouble from this source. We are just beginning to get some real data on the effect of electrolysis on our cement covered services. Just recently we had occasion to remove some services from two to four years old in a rather high current area. We examined these services very carefully where they passed over water mains or other objects to or from which we might expect a flow of current. On the services which we examined we found absolutely no effect from electrolysis. On one service we found no effect where it passed over a water main, but about fifteen feet away the service was eaten about half way through. It was evident, however, that there was a bad cement job at this point, in fact, apparently cement had never even touched this part of the service. I grant that these services were not in the ground for a sufficient length of time to be of any real value. However, I do think they are worth noting. But we do know by actual inspection of the old services which we have had occasion to remove that the metal of the pipe has been found to be in perfect condition after fifteen to twenty years of service, except, of course where the pipe is found to be corroded from bad workmanship in the laying of the cement around the pipe. We are now beginning an investigation of these cement covered services which have been in the ground for long periods and are located in parts of the city where we know a very bad electrolysis condition exists. Thru this investigation we hope to determine the value of cement coatings to withstand bad electrolysis conditions.

Method of Laying Services

The first step, of course, in laying a service is to expose the main. We then tap the main about four inches to one side of where we want the service to run. This hole is tapped with a Mueller combination drilling and tapping machine. The smallest size service we are laying at present is one and one-half inch. We, of course, lay larger size services as the customer's demand and length of service may require. I shall describe here the laying of a one and one-half inch service.

As soon as the service tap is completed and the machine is removed, a street tee with rubber stopper in the top and extending below the side outlet, is tightly

screwed into the main with the side outlet parallel to the main and pointing toward the center of the trench. During the tapping of the main the other members of the service gang complete the trench from the main to where the riser is to be placed. We are now ready to begin with the service proper.

A street ell is now screwed tightly into the street tee, so that the outlet points directly down the center of the trench towards where the riser is to come out of the ground. The boxing or cement form is now laid along the middle of the trench. This form consists of a trough made of a 1" x 3½" pine bottom to which is tacked ½" x 4" sides. We now screw the 1½" black iron service pipe into the street ell and line the form up so that the pipe will lay in the center. All our services are laid so that they will drain back into the main. So, when the trench is dug it is sloped upward from the main to the riser. When the cement form and pipe are all ready, the pipe is raised and about an inch and a half of fairly soft mix of 1 x 3 Portland cement the sand is placed all along the bottom of the form. The pipe is now lowered and pressed down into the cement to a distance of about ¾" from the top of the form to the top of the pipe. This insures a good ¾" of cement on top and at the bottom of the service, and one inch on both sides. The 1 to 3 mix of fairly soft cement and sand is then poured on top of the service and tamped on both sides of the pipe with a trowel to insure a good job. After it is well tamped it is smoothed off on top with a trowel and a strip of pine ½" x 4" laid on top.

The riser is now placed and capped, ready for the meter department to set the customer's meter. The riser is similarly protected with cement and boxing up to and a little above the ground level. After the riser is completed we go back to the street tee, remove the rubber stopper and plug the top opening. The street tee and street ell are covered with cement mortar and short strips of ½" x 4" pine placed on top and sides. These strips just mentioned and the strip all along the top of the service protect the cement during backfilling. The service is now complete and ready for backfilling.

All screw joints in the service from the street tee and main to the service riser are doped with Key paste to insure a non-leaking joint.

Our average service gang consists of three laborers, a pipe-fitter helper, and service foreman who is a pipe-fitter and assists in the pipe fitting work. We find from very accurate data that the additional cost of a 1½" service due to adding the cement coating, will run about $0.082 per lineal foot on an average. When larger services, such as 2", 3" or 4" are laid, we box them in concrete in the same manner as described above, using larger cement forms. The cost of these larger services will, of course, run higher in proportion to the amount of cement used.

Pipe Coating Tests Planned

Secretary of Commerce Lamont comments on work to be done in cooperation with A. G. A.

The enormous capital invested in underground pipe systems, and the well-established fact that this pipe is being attacked by the surrounding soil has resulted in much discussion by those who are responsible for the maintenance of these pipe systems. The problem of pipe protection is of such vital interest to the gas industry that the sub-committee on pipe coatings and corrosion of the distribution committee of the American Gas Association has supplied funds for the study of this problem and has appointed a research associate at the Bureau of Standards.

Every gas engineer who has a pipe system to protect must decide whether or not it is economical to apply some kind of a coating to his pipes and if he feels that protection is necessary he must choose the kind of coating that he will use. But in attempting to choose the coating he finds that his principal source of information is the coating manufacturer. Here he finds a number of conflicting and often well-grounded opinions as to what a protective coating should be and his final decision will probably depend largely upon the source of his information. The characteristics and properties of a material which is available and cheap and which will best protect a pipe are not definitely known, and they may depend upon the kind of soil in which the pipe is laid. For the above reasons any accelerated test of a coating is at this stage open to question.

Therefore the first step in such an investigation appears to be to find how a wide variety of coatings behave in a wide variety of soils. This information can best be obtained by burying carefully prepared coated pipe specimens in extreme soil types. The sub-committee on pipe coatings and corrosion has agreed to make these burial tests in cooperation with coating manufacturers. Manufacturers of coatings who wish to cooperate in these tests are therefore asked to communicate with the Bureau of Standards. The total number of coatings to be tested will be limited to about fifteen so that it may not be possible to test the product of every manufacturer who wishes to cooperate. Coatings may be excluded from the test either because they have not shown sufficient merit in service, or because they appear to be inadequate, or because they are similar to other coatings in the test. Unless the coating manufacturer has a coating plant of his own, the coating will be applied by the manufacturer to full length 2-inch pipe at the Versailles plant of the National Tube Company. The pipe will be supplied by the National Tube company and will be sand-blasted by them. After the coating is applied the pipe will be cut in 2-foot lengths, care being taken not to injure the coating. The ends will be protected with tin cans full of bitumen and the pipe will then be shipped to the place of burial. Each manufacturer will be asked to submit to the Bureau of Standards a statement of the composition of his coating and the general method of manufacture. Each manufacturer will be asked to agree to the following:

1. That the proposed method of cleaning the pipe, applying the priming coat and cutting the pipe is satisfactory to him and gives his product a fair test.

2. That the coating submitted by him is the product he recommends and is applied in such a way as to give adequate protection in severe conditions.

3. Every manufacturer is at liberty to use as many applications as he chooses and coat the pipe in any way he chooses, provided the average thickness of the coating is not over ⅛ inch, and provided also that the coating is a practical coating and the materials in it are

materials the manufacturer produces and sells and are in no sense special products. The thickness of the coating will be determined by making 12 measurements with a depth gauge on any specimen, distributed as follows: 4 measurements equally distributed around the pipe 4 inches from each end and 4 measurements equally distributed around the pipe at its center.

4. The number of applications, the method of application and any other facts concerning the application of the coatings that have a bearing on its value will be part of the description of the coating.

In case the manufacturer's description of his product is so general and indefinite that the material is not sufficiently well defined, there would be no object in testing it and it will be omitted from the test.

Further information concerning the tests will be supplied by the Bureau of Standards to any manufacturer of coatings who is interested.

Water Requirements for Gas Cooling

Information from "Economies in the recovery of ammonia by the indirect process" presented to the British Institution of Gas Engineers

By H. Hollings and S. Pexton

of the Gas Light and Coke Company, London, England.

THE amount of water required to cool gas depends upon the temperature of the water, the area of the cooling surface, and the rate of heat transmission across the cooling surface. The rate of heat transmission varies with the velocities of the gas and water, the viscosity of the tar condensed, and the state of cleanliness of the metal surfaces on both the gas and the water sides. It is impossible from the experimental data available to state precisely what is the magnitude of influence of each of these factors, and therefore an approximate idea, in limited circumstances only, can be given for the quantity of cooling water required for a given size of condenser.

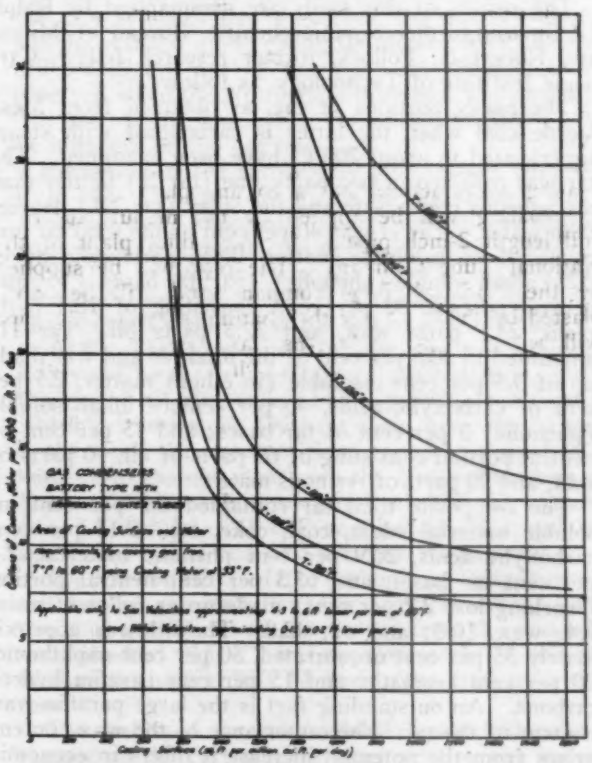


Fig. 1

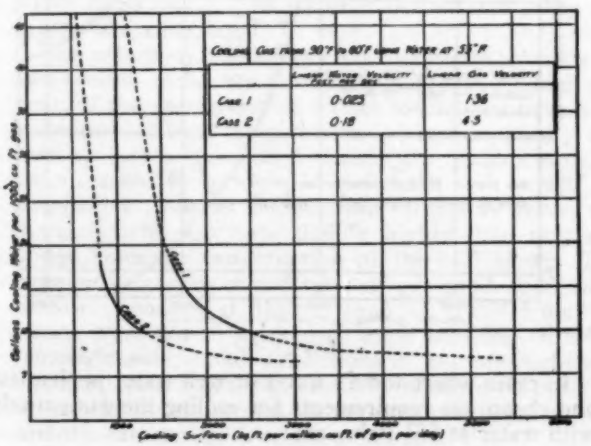


Fig. 2

Fig. 1 shows the relationship between the area of cooling surface of a modern condenser with horizontal water tubes and the water requirements for cooling saturated gas from the temperatures stated, to 60° Fahr., using cooling water of 55° Fahr.

Fig. 2 shows a comparison between a modern battery condenser and one of older design having vertical tubes and using much lower gas and water velocities in the temperature range 90°—60° Fahr. Both series of experiments were made with vertical retort gas. Comparison shows that increasing the gas and water velocities from 1.36 and 0.025 ft. per sec. respectively to 4.5 and 0.18 ft. per sec. respectively has halved the area of cooling surface necessary. A comparison between the two types of condensers made in the temperature range 140°—100° Fahr. showed approximately the same relationship.

It was suggested above that boiler feed water should

be used in a water cooled condenser following the exhausters. This water is available to the extent of 150 gal. per ton of coal in works having horizontal retorts with water gas plant, and approximately 170 gal. per ton of coal in the case of vertical retorts. In both instances this corresponds to 11 gal. per 1,000 c. ft. of coal gas. Allowing a reasonable margin, it is clear from Fig. 2 that, with a well-designed water cooled condenser having a cooling surface of 1,500 sq. ft. per million c. ft. of gas per day, the gas can be efficiently cooled from 90° Fahr. to 60° Fahr.

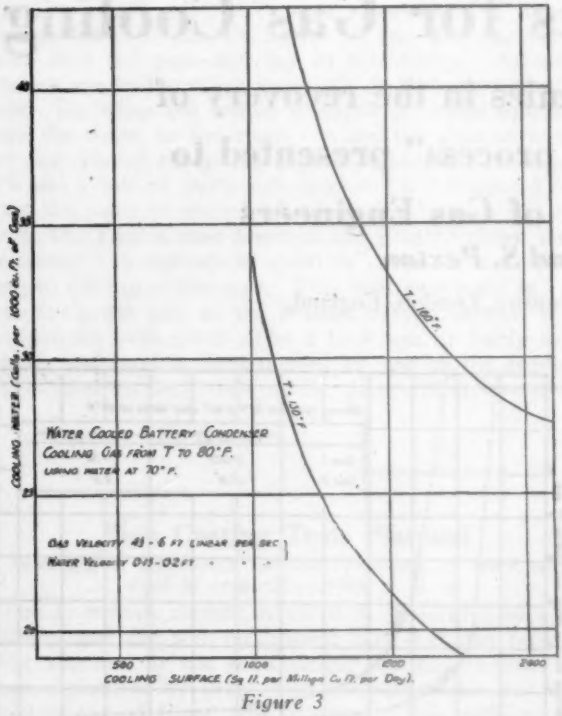

WATER COOLED BATTERY CONDENSER
COOLING GAS FROM T TO 80°F.
USING WATER AT 70°F.
T=180°F
T=100°F
COOLING SURFACE (Sq. Ft. per Million Cu. Ft. per Day).

Figure 3

In cases where town's water or well water is plentiful and cheap, the requirements for cooling the gas entirely with water at 55° Fahr. are:

	Cooling Surface Sq. Ft. per Million C. Ft. per Day	Gal. Water per 1,000 C. Ft. of Gas
Horizontal retorts	1,250	25
Gas temperature range, 130°-60° Fahr.	1,500	20
	2,200	15
Vertical retorts	1,800	30
Gas temperature range, 160°-60° Fahr.	2.500	25

In most works, however, the cost of town's water or well water is too great to allow of its use for the entire cooling of the gas and the preliminary cooling down to 80° or 90° Fahr. must be made either with water cooled condensers using river water or atmospherically.

Taking an extreme case, when the temperature of the river water is 70° Fahr., the requirements for cooling gas to 80° Fahr. are:—

	Cooling Surface Sq. Ft. per Million C. Ft. per Day	Gal. Water per 1,000 C. Ft. of Gas
Horizontal retorts	1,250	25
Gas temperature range, 130°-80° Fahr.	1,600	20
Vertical retorts	1,400	35
Gas temperature range, 160°-80° Fahr.	1,750	30

The above results are illustrated in Fig. 3.

The temperature at the outlet of an atmospheric condenser varies to such a large extent that it is only possible to give very approximately the size of the condenser found necessary in practice to cool gas from 160° to 80° Fahr. (vertical retorts) and from 130° to 80° Fahr. (horizontal retorts).

Range Gas Temperature	Ft. Length of 12 in. C. I. Pipe per Million C. Ft. Gas per Day.
130°-80° Fahr.	800
160°-80° Fahr.	1,300

Composition of Tar from Low-Temperature Carbonization of Utah Coal

The results of a study of heavy portions of tar from low-temperature carbonization of Utah coal made by the United States Bureau of Mines, Department of Commerce, Carnegie Institute of Technology, and the Mining and Metallurgical Advisory Boards, are given in Bulletin 41, Mining and Metallurgical Investigation recently published by Carnegie Institute of Technology. This is the third in a series of cooperative studies of the composition of tars obtained from Mesa Verde (Utah) coal when carbonized with steam superheated to about 700°C. This investigation includes an analysis of the tars; resolution into oil, wax, and resin of the neutral portion from all three tars; a study of the composite neutral portion from all three tars as compared with crude petroleums, and of the liquid hydrocarbons of this composite neutral portion and their variation with their boiling temperatures.

The results of this study are summarized by Ralph L. Brown, former organic chemist, Bureau of Mines, and Robert N. Pollock, former research fellow, Carnegie Institute of Technology, as follows:

The heavy portions of the tar obtained from Mesa Verde coal when the latter is carbonized with steam superheated to about 700°C. have been examined. The tar was collected in two parts, one (tar II) lighter than the aqueous condensate and the other (tar III) heavier than water. Tar II was 40 per cent of the total tar and consisted of insoluble matter, 0.85; carboxylic acids, 2.25; alkali soluble (phenolic), 15.0; tar bases, 1.55; and neutral portion, 80 per cent, consisting of 18.5 parts resin, 24.1 parts wax, and 57.5 parts oil. Tar III amounted to 30.8 per cent of the total tar and was made up of 9.5 per cent insoluble (in ether) matter, 2.5 per cent of carboxylic acids, 40 per cent of alkali soluble (phenolic) 3 per cent of tar bases; and 45 per cent of neutral portion consisting of 69 parts of oil, 10 parts of wax, and 20 parts of resinous matter.

The composite total tar contained 3.5 per cent insoluble material—dust, coal, coke, etc.—2.15 per cent carboxylic acids, 26.9 per cent phenolic material, 2.1 per cent tar bases, and 63.3 per cent neutral portion (working loss 2.2 per cent) made up as follows: resin, 9.4; wax, 10.8; and oil, 42.8. The oil was approximately 35 per cent unsaturated, 30 per cent naphthenic, 20 per cent aromatic, and 15 per cent paraffin hydrocarbons. An outstanding fact is the large paraffin-wax content of the tar. The importance of the wax content arises from the potential increase it offers in economic return from the by-products of low-temperature carbonization.

Factors Affecting Yields in Coking

A summary of the 23rd report of the Joint Research Committee at the recent meeting of the British Institution of Gas Engineers.

THE work herein described represents the fourth stage of a series of investigations on the factors which influence the carbonisation of coal and the properties and yields of its by-products. Previous reports have dealt with the results obtained when a Nottinghamshire coal of moderate coking properties was examined, but the present work describes experiments which have been carried out using a highly coking Durham gas coal.

The experimental plant employed in the work now described is similar to that in which all previous investigations have been made, except for a few minor alterations.

The coal was graded into three sizes, 1¼ in. to ¾ in., ½ in. to ¼ in., 8 to 30 mesh, and examined at two temperatures of carbonisation, 920° C. to 815° C. The size of the coal had no effect on the ultimate yields of gas, coke, and therms when the three grades were carbonised at the same temperature. At 920° C. the greatest tar yield was obtained with the largest size, but at 815° C. no marked differences were obtained; this effect of size on tar yield is common to both coals. The size of the coal when carbonised at 920° C., affects the rate at which gas is evolved, the mixture of sizes and the smallest grade giving the slower rates, but these differences are not of the same magnitude as those observed when the Nottinghamshire coal was examined. The size of the coal, when carbonized at 815° C., had no influence on the gas rate.

Reduction of the carbonising temperature from 920° C. to 815° C. affects the yields of gas, therms, etc., in a manner to be expected. The volume of gas obtained from the 8 to 30 mesh coal decreased from 12,007 c. ft. at 920° C. to 9,959 c. ft. at 815° C.; the calorific value increased from 597 to 649 B. Th. U. per c. ft., but the final thermal yield of gas per ton of coal fell from 71.7 to 64.6. The composition of the gas was materially influenced by the temperature of carbonisation, and although the calorific values of the gas obtained from the Nottinghamshire and Durham coals were approximately the same, their compositions varied to a marked extent. The gas obtained from the Nottinghamshire and Durham coals, when carbonized at 920° C. contained CO_2 3.5 and 1.4, CO 11.7 and 5.4, H_2 51.2 and 56.5, and $C_nH_{2n}+_2$ 27.5 and 29.3 per cent. respectively.

The market effect of the carbonising temperature on the rate of gas evolution was again observed. After one hour the volume of gas evolved from the coal, when carbonised at 815° C. was approximately 50 per cent. of that obtained at 920° C. during the same interval of time.

The yields of tar, ammoniacal liquor and coke increased as the carbonisation temperature was lowered.

Experiments in which coke breeze was added to the coal showed that increasing additions of this substance had no marked effect on the yields of gaseous therms and ammonia per ton of coal, but by the addition of 30 per cent. of breeze to the coal before carbonisation at 920° C., the amount of tar produced per ton of coal was materially lessened. The addition of coke breeze increased the rate of gas production per lb. of coal, but not per lb. of charge, at both temperatures, this effect being more marked with the Durham than with the Nottinghamshire coal. It is to be noted that to ensure that all the charges should occupy approximately the same volume in the retort, modifications in the weights of the charge had to be made when coke was added to the coal. This factor must be noted when the results are considered.

The effects of adding calcium carbonate, iron oxide and sodium carbonate (in amounts equivalent to 2 per cent. of the corresponding oxides to the coal have been examined at both temperatures of carbonisation; calcium oxide was also added at 815° C. Sodium carbonate increased the amount of gas made, both at 920° C. and 815° C., but, as the calorific value was lower, the thermal yield was only slightly higher than that obtained from the carbonisation of the coal alone. The increase in gas make and rates of gas production were more pronounced at 815° C. than at 920° C., but the effects were not so marked as those obtained with the Nottinghamshire coal. Additions of calcium carbonate and iron oxide had no appreciable influence on the final yields of gas and therms, at both temperatures, neither had the calcium oxide much effect at 815° C.

The addition of iron oxide to the coal gave a higher tar yield than that obtained by the admixture of the other inorganic compounds at both temperatures of carbonisation.

The quantities of sulphuretted hydrogen in the crude gas were reduced by the introduction of the inorganic compounds, iron oxide being the most efficacious. Similar results were obtained with the Nottinghamshire coal.

All three compounds brought about increased ammonia yields when the Durham coal was carbonised at 920° C., calcium carbonate being the most and iron oxide the least effective. Similar results were obtained with the Nottinghamshire coal at this temperature. At 815° C. additions of all the compounds to the Durham coal, with the exception of calcium oxide, *decreased* the amount of ammonia produced, sodium carbonate having the least and iron oxide the greatest effect. The increase in the case of calcium oxide was very marked. At 815° C. calcium carbonate, iron oxide, and sodium carbonate, when added to the Nottinghamshire coal, all *increased* the ammonia yield. It is therefore concluded that the effect of these compounds during carbonisation is modified by the type of coal to which they are added.

Thermal First Aid

How Louisville Was Supplied With High B. T. U. Gas During a Break in the Natural Gas Supply Line

By Leon J. Willien,

Operating Gas Engineer, Byllesby Engineering & Management Corporation

IT is doubtful if any gas company has ever had to make an 850 B. t. u. Carburetted Water Gas. While the following narrative, which tells of making such a gas, may not be of practical value, it is an interesting illustration of a case where academic tests and chemical control prevented an interruption of the gas service to 75,000 gas consumers.

Local ordinance requires that the gas supplied in Louisville, Kentucky shall not be less that 850 B. t. u. Natural gas is supplied up to the capacity of a pipe line from Eastern Kentucky, or 20 million cu. ft. per day, manufactured gas is mixed with the natural gas. The manufactured gas is made in a carburetted water gas plant and mixed with the natural gas at the city gates. The B.t.u. of the manufactured gas varies from 150 to 600, depending upon the amount of manufactured gas that is mixed with the natural gas. The B.t.u. of the mixed gas is maintained at 875.

If a very serious break occurred in the natural gas line from eastern Kentucky, cutting off the supply of natural gas for any great period of time (24 hours or more), Louisville might run out of gas unless an 850 B. t. u. manufactured gas could be produced. A series of tests were therefore made to determine if an 850 B. t. u. carburetted water gas could be made.

"A stitch in time saves nine" was well exemplified in the ability of the gas plant in Louisville to supply its customers with gas of 850 B. T. U. quality during a serious break in the Natural Gas supply line from the Kentucky field. Previous to the break the engineers had carefully investigated the possibility of producing a gas of this quality from a carburetted water gas machine and had demonstrated that it could be done as a practical proposition. Consequently, when Louisville was accidently deprived of its supply of Natural Gas the water gas machines were thrown into the breach and successfully furnished the city with gas of the required heating value. In short, intelligently planned chemical control prevented interruption of the proper gas service.—Editor.

These tests were made in a standby plant that had not been operated for several years. The generating equipment consists of two 9 ft. water gas sets which are about twenty years old. At first it was believed it would not be very difficult to produce such a gas. As the experiments progressed, it proved to be more difficult than was thought. It was easy enough to make 750 or 800 B. t. u. gas, but to obtain the last 100 B. t. u. was the hardest. However, after considerable experimenting with chemical control in the form of gas analyses, a 900 B. t. u. gas was finally made. A holder full of this gas (500 M. C. F.), after standing in the holder overnight, tested 870 B. t. u. when pumped out the next morning, and after compressing it to 55 lbs. and delivering it 3½ miles it tested 860 B. t. u.

It was apparent from the gas analyses that an 850 B. t. u. carburetted water gas must contain about 45% blue gas and 55% oil gas of 1200 B. t. u. The only way this could be done was by using alternate runs of practically all oil gas and carburetted blue gas. Even with this method, the temperature in the carbureter and super-heater had to be kept within fairly narrow limits (1200°F. at top of superheater and 1320 to 1350° F. at bottom of carbureter). The operating cycle used for making 850 B. t. u. gas was an 8 minute cycle; 4 minutes blow and 4 minutes run. On the all oil run, the oil was introduced at the top of the carbureter for 3½ minutes. Up-run steam was used at the rate of 35 lbs. per minute during the last minute of the run. On the oil-steam runs, 35 lbs. of steam per minute was used on the up-runs and 30 lbs. on the down-runs. No split runs were used. The oil was introduced in 3½ minutes; 50, 55 or 60 gallons of oil were used on all runs. The maximum amount was governed by the maximum amount that could be used on the oil-steam run without developing too much pressure in the set and raising the stack valve. If excessive pressure developed, the steam was reduced rather than the oil. The manufacture of 850 B. t. u. carburetted water gas required about 9 gallons of oil per M and between 35 and 40 pounds of coke.

The specific gravity of the gas was about 0.850 and burned quite satisfactorily in appliances adjusted for natural gas of 0.670 gravity on a pressure of as low as 2" of water.

These tests were made in April 1928 and the following June the natural gas line to Louisville went out of commission as the result of a landslide, cutting off the source of supply. The manufactured gas plant had been shut down since April, as it is operated only during the winter months. Orders were issued to start up and make 850 B. t. u. gas. Within three hours the plant was making gas and, before the emergency was over, 872 B. t. u. gas was being made at the rate of 12 million per day with four 12 ft. sets equipped with backruns.

The natural gas line was out for about 24 hours, but the ability to make 850 B. t. u. gas undoubtedly prevented an interruption of the gas service in the City of Louisville. The ability to make such a gas on such short notice was due to the tests made in April, which demonstrated that such a gas can be made. The operat-

Bear Grass Plant of Louisville Gas and Electric Company

ing crew knew what cycle to use to make it and went ahead without any hesitation when the emergency arose.

Since then, storage tanks capable of holding 150,000 gallons of liquid butane have been installed, which make it possible to produce 28 million cu. ft. per day of 920 B. t. u. gas having a gravity of 0.800. This can be accomplished by using oil on the backrun with a 15 second blowrun, making a 520 B. t. u. gas of .60 gravity and enriching it with 20% of butane. The use of butane also makes it possible to increase the production of manufactured gas 2½ million per day at times of peak loads. While the cost of this emergency gas, or peak load gas, is higher than normal operation, it is cheaper operation in the long run because such gas is made on only about fifteen days a year. The cost of the butane storage tanks was much less than additional generating equipment capable of producing the same amount of additional gas.

Determining Gasoline Content of Natural Gas

Summary of Report by Martin Shepherd in Bureau of Standards Journal of Research

It has been shown that an exact definition of the term "natural gasoline" is a prerequisite to the determination of the actual natural gasoline content of a natural gas. A definition has been developed which describes the maximum amount of condensate, complying with shipping regulations, that can be extracted from a natural gas. A method has been developed for the accurate determination of natural gasoline thus defined.

Analyses made by this proposed standard method have been compared with those made by the ordinary existing methods. The data obtained indicate that the natural gasoline content of a natural gas can only be determined by the use of such a method as the proposed standard one, since existing field and laboratory methods yield results which do not agree among themselves and, in general, are lower than values obtained by the standard method. It is further evident that the interpretation of experimental plant data, the determination of actual plant efficiencies, the study of the action of rectifying columns for the removal of propane from natural gasoline or for the production of special fractions from the natural gas condensates, and other special investigational problems must depend for their true solution upon such a reference method as here developed.

This method for the accurate determination of gasoline in natural gas involves a special separation of the natural gas by fractional distillation at low temperatures and pressures. A recombination of the resultant fractions is made in such a way that it is possible to determine the maximum amount of hydrocarbon condensate present in the original gas which possesses any given vapor pressure at any given temperature. Special forms of apparatus are used for separating the higher boiling constituents and determining their liquid volume to 1 cubic centimeter. Apparatus and procedures are described in detail, analytical results given, and a direct comparison made with existing field and laboratory methods. The analytical separation of natural gases and their commercial condensates is also discussed. The paper as a whole is intended to be a simple instruction book for those who wish to engage in such work.

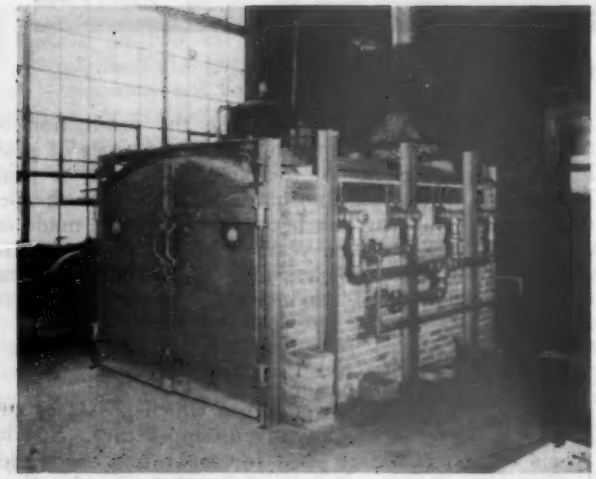
There are three general conclusions to be drawn from the comparative data. The first is that different modifications of the same field-laboratory method yield results which do not always agree. The second is that no modification of the oil absorption method gives results which agree with any modification of the charcoal absorption method. The third is that both the oil absorption and charcoal absorption methods give results which are too low.

All of these facts were to be expected, since the oil absorption and charcoal absorption methods involve many variable factors, some of which are not readily controlled. Even a thorough standardization of these test methods can not entirely eliminate some of these variable factors, and back of these considerations lies this fundamental difficulty—the ordinary absorption methods seek to determine a substance which has no identity. The substance isolated by the test is called the thing sought. If this were entirely reproducible, the idea would be convenient. Since it is not, confusion must result. The results obtained by the new method can not be strictly compared with those yielded by the ordinary methods, since the new method isolates a perfectly definite condensate which can be analytically reproduced.

A Real Industrial Gas Customer

Meadows Manufacturing Company Puts Gas to a Great Variety of Uses in its Plant

By E. E. Pierson



Fifteen ton gas-fired furnace for heat treating gray iron castings

THE recent installation of a fifteen ton gas-fired furnace for heat treating gray iron castings in the foundry of the Meadows Manufacturing Company at Bloomington, Illinois, adds another use for gas to the already numerous applications of this fuel in the Meadows plant.

When one considers that this company uses gas in its cafeteria, printing shop, enameling department, and foundry, as well as for heating water and cleaning metal parts in a gas-fired washing apparatus the colloquial expression, "from soup to nuts," might well be applied.

The installation of the fifteen ton heat treating furnace was necessitated due to the fact that this company had started production on a new washing machine which contained a considerable number of gray iron castings. Since very rigid requirements as to machining and drilling had to be met in the machine shop it was of the utmost importance that the castings be in such condition as to eliminate any possibility of warping and misalignments after machining.

The operation of heat treatment, of course, removes any internal stresses and strains in the iron, caused by rapid cooling in the moulds, and is carried out at a temperature considerably under the critical temperature, thereby involving no structural change in the metal. Further, the necessity for aging over long periods of time is obviated. On an operation of this nature, it is of special importance that the heating be uniform throughout, and the rate of temperature rise and soaking period be accurately controlled to follow a pre-determined cycle which varies according to the nature of the charge.

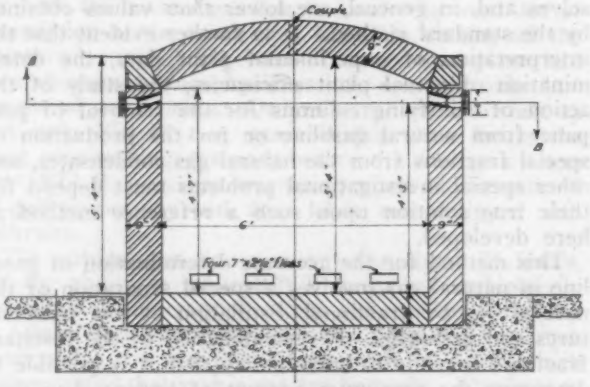
Both oil and gas were considered as fuels for this operation, but, after careful anaylsis of all the factors involved, the decision was reached to utilize gas. The fact that gas had proven superior to other fuels for other of the company's uses, was, no doubt partly re- for the selection by the management.

On operating this furnace the castings are subjected to a temperature of 1000 deg. F for three hours whereupon the gas is turned off and the metal allowed to cool to 300-400 degrees in about six hours.

Furnace Construction

The inside dimensions of the furnace are six feet in width and nine and one half feet in length with a height of five and one half feet. The walls are of nine inch fire brick. The swinging doors have four inch channel frames and a sheet iron casing on the outside, all filled with insulating concrete rammed into position and supported by reinforcements, giving a serviceable door, much lighter than fire brick. Surface combustion, high pressure burner equipment is used, four burners on each side, firing over the arch.

The castings are placed in containers, 30 inches wide 36 inches long and 18 inches deep, which rest upon supports nine inches high and open at the ends, the sides being closed. A double row of these supports and containers is used. Two ducts are thus formed by the support, each leading to flue openings at the bottom of the rear wall. Holes were cut in the top of the supports which compose the bottom of the containers and the front ends of the ducts are sealed with fire brick. This arrangement forces the flue gases to pass down through the metal parts and out through the ducts to the flues. Very uniform heating of the castings is obtained by this method.



Sectional View of Furnace

The following data after several weeks of operation obtained.

Weight of castings	6871 pounds
Weight of supports	1170 pounds
Gross charge	8041 pounds
Time heating to 1000 deg. F.	3 hours
Time holding at 1000 deg. F.	9 hours
Time cooling to 400 deg. F.	3 hours
Gas consumption	6800 cu. ft.
Gas per pound of product	0.989 cu. ft.
Kind of gas	Carb. Water Gas
Calorific value of gas per cu. ft.	565 B. T. U.

The enameling department of the Meadows company formerly used an air process for drying the two coats of enamel. The operation required 500 machines which occupied a great deal of valuable space. This process has been supplanted by two gas-fired drying ovens which not only save a large amount of floor space but also produce a superior finish, and increase production.

One of these ovens is of the car type and is used for small washing machine parts. The larger oven, which is used for baking the enamel on the washer bodies, is 80 feet long and nine feet wide and is divided into two chambers by a center wall for its entire length. Eight low pressure burners with automatic temperature controls supply the gas and keep the operating temperature at 175 deg. Fahr. It requires 55 minutes for a machine to pass through the oven during which time the enamel is baked on. At the end of the oven the priming coat is sprayed on and at the other the finishing coat. Thus each machine makes the transit of the oven twice, through in one direction and back in the other.

There are also several other applications of gas in the machine shop. Of these the most important is in a continuous gas-fired washing machine for cleaning and degreasing the metal parts before passing to the assembly department. The parts are placed upon a conveyor and pass directly into a chamber where they are sprayed by a boiling hot cleansing solution. The solution is heated by a premix burner, firing into a duct located in the lower section of the tank. Other uses of gas in the machine shop, include a cyanide furnace for hardening small parts and a small high speed steel furnace in the tool room.

The company experienced difficulties in the manufacture of the washer, due to dampness remaining between the copper lining and the steel shell as the tubs came from the plating department. If not removed, the dampness would eventually work out and spoil the enamel finish. To solve this problem, a continuous gas fired drying machine was designed and built. In passing through the drier, the tubs are heated to about 220 degrees Fahrenheit and remain in the drier sixteen minutes. This operation dries the tub thoroughly and removes all traces of dampness between the lining and the shell. The company operates a complete printing plant whose presses are equipped with gas burners for removing static and drying the ink on the finished product. Metal on the linotype machines is melted with automatically controlled gas burners.

A cafeteria where several hundred employes are served daily is also operated in connection with the factory. The ranges are gas fired and water is heated with gas.

The management feels that the value of gas as a fuel has been emphatically demonstrated. Extreme cleanliness prevails throughout. Problems of fuel storage and handling are eliminated, while there is no longer any loss through spoiled and rejected parts due to uncontrolled heating. There also obtain increased production, a better product and a lower fuel cost.

Purchasing Study Points to Changes

Purchasing agents have been shortening the period of ordering in advance, reducing the size of orders, placing orders at more frequent intervals and at the same time have been lessening their inventory burden to a remarkable extent, a survey of current trends in purchasing conducted by Dr. Leverett S. Lyon of the Brookings Institution, Washington, D. C., in cooperation with the National Association of Purchasing Agents reveals.

Information supplied by over 130 companies located in various parts of the United States formed the basis upon which the conclusions shown in the study were reached.

Covering the period from 1914 to 1928 the replies showed that the most common period for placing orders ahead was 90 to 120 days in 1914 and in 1928 it was 30 to 60 days. The second most common period in 1914 was 180 to 360 days ahead and in 1928 was 90 to 120 days.

Some of the general observations made from the reports included the fact that orders for steel were placed 60 days or more in advance by 92 per cent of those reporting in 1914 and by only 40 per cent in 1928.

Regarding the size of orders placed, Dr. Lyon reports 79 per cent of the companies questioned stated that they order in smaller quantities in proportion to their needs than they did five years ago. Eighty-six per cent said they ordered at more frequent intervals.

A marked decline in stock burdens during the last ten years is indicated in the report. Taking the average inventory as a percentage of the year's requirements, the proportion of cases in which a stock burden of less than 10 was reported more than doubled from 1914 to 1928, the survey shows. While in every reported year from 1914 through 1926 a stock burden of from 20 to 30 is the one most commonly reported, in 1928 a stock burden of from 10 to 20 had become the most common. Reports of cases where stocks were 75 per cent or more of a year's requirements declined from 5 per cent of the replies in 1914 to 1 per cent in 1928. They represented a larger proportion of the total, however, in 1918 and 1922 than in 1914.

Outstanding among improvements in the technique of purchasing as reported in the survey are the increased number of centralized purchasing departments, the employment of better stock and purchasing control systems and an increase in devices for insuring delivery according to agreement.

Sixty-seven per cent, of the companies answering reported the installation of centralized purchasing during the last five years; 92 per cent reported definite improvement in production control in their plants; 70 per cent said stock and purchase control systems had been installed during the last five years; 85 per cent said the type of purchasing personnel had been improved, and 89 per cent said they make delivery within a specified time a condition of their contracts of purchase.

Chemical Analysis of Gas Purifying Materials

By Gilbert E. Seil, Ph. D.

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and

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Introduction

A large number of gas purifying materials have been sampled and analyzed by the Technical Department of E. J. Lavino and Company in the past three years and the amount of work done on these materials has steadily grown in volume and importance. During this time no method of analysis brought to the attention of the authors has been left untried, but because the materials themselves are more or less non-uniform, because methods of analysis vary, and because systems of reporting and interpreting results differ widely, it has not always been possible to check the findings of other laboratories. Various industrial and gas laboratories have requested this department to submit methods of analysis, and for this reason the ones most commonly used, chosen for accuracy, rapidity and ease of manipulation, are outlined in this article.

In almost every case the method of chemical analysis is considerably more accurate than the method of sampling. This is especially true of sponges. With normal sponges it would be necessary to very carefully take a 2.5 kilogram sample to approach the accuracy of the methods described.

In choosing a method of analysis, the chemist must be governed by the type of material and by the information he wishes to obtain. The materials can be divided into three types—oxides, unused sponges, and used sponges. The purpose of the analysis varies greatly. Sometimes it is intended to determine the active ingredients of the material. Very often the purpose of the analysis is to find and correct the trouble in a box which is not purifying satisfactorily. A chemical analysis may be made to determine whether the material still has sufficient life for another fouling but activity determined chemically is very inaccurate and unreliable. The most dependable results in cases of this kind are obtained by the activity test described by the authors in "A Manual on Dry Box Purification," published in the American Gas Journal, May and June, 1929. For the reasons outlined above, full and complete data on all samples is a very necessary part of the certificate of analysis.

SAMPLES of gas purifying materials submitted to the laboratory for chemical analysis are divided into three classes, and the following outline indicates the determinations usually made.

I OXIDES

(a) *Moisture*
(b) Fe_2O_3
(c) *Total CaO*
(d) *Active Alkalinity*
(e) *Total Alkalinity*
(f) CO_2
(g) *Total* Na_2O

II UNUSED SPONGE

(a) *Moisture*
(b) Fe_2O_3
(c) *Percent oxide in sponge.*

III USED SPONGE

(a) Fe_2O_3
(b) *Total S*
(c) *Free Sulphur and Tar*
(d) *Light Oils*
(e) *Napthalene*

Determinations on oxide and unused sponge are reported on the "as received" basis, in order that they will indicate the actual amount of active material in the sample. Determinations on used sponge are reported on the dry basis, since in revivification the material is necessarily air dried, and the percentage of residual moisture has no significance.

Moisture is determined by distillation in toluene. The method described is general in its application, and can be used on all classes of material.

Determination of Moisture

APPARATUS

1—Wide mouth flask, 1000 ml. capacity.
1—Side arm distilling tube, 10 ml.
1—Condenser, 40 cm. long.
1—Florence flask—1000 ml. capacity.

A special side arm distilling tube graduated from 15 to 25 cc may be advantageous at times, but is not necessary.

The apparatus is arranged as shown in the accompanying diagram, on page 37.

The choice of the flasks depends on the nature of the sample. If the sample is soluble in toluene, the ordinary Florence flask is used. If the material to be analyzed is insoluble in toluene, the sample is wrapped in a dried cloth, tied with a thin dried wire, and suspended by the wire into the wide mouthed flask. Wrapping the sample in this fashion permits easy removal at the end of the test, and prevents the material from coating the bottom of the flask and causing bumping, which is es-

pecially dangerous with inflammable materials, such as toluene.

For most determinations the 10 cc side arm distilling tube is satisfactory. Should it be necessary to take a large sample of material high in moisture, the 25 cc distillation tube is used.

Procedure

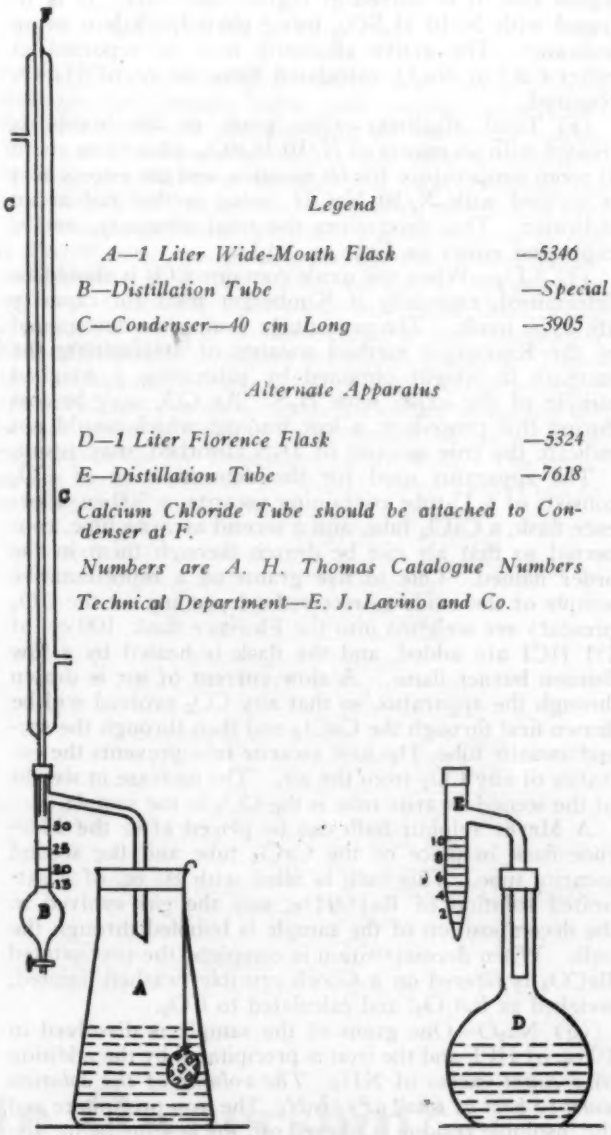
About 400 cc of toluene and 5 or 6 cc of water are placed in the flask, the reflux condenser is connected as shown, and the flask heated to boiling. The water and toluene will boil over, condense in the reflux condenser, and the water will drop to the bottom of the distillation tube. When the tube has filled up to the side arm, the excess toluene will run back into the flask.

The boiling is continued until the reading of the water meniscus in the distillation tube remains constant for about a half hour. This shows that the point of equilibrium between the water and the toluene has been reached, and the toluene is ready for use.

The size of the sample taken depends on its moisture content, the sample being chosen so that the final reading on the distillation tube is 5 to 10 cc. Should it be necessary to take a sample which would give 15 to 25 cc readings, the special distillation tube must be used.

The sample is placed in the toluene, a clean, dry distillation tube is put in place, and the flask is heated to boiling. The boiling is continued until the water meniscus in the distillation tube remains constant for about a half hour, showing that all the water has been removed from the sample. The percentage of water is calculated from this reading and the weight of sample taken.

The advantages of using this method are many. Once started, the determination requires no attention except an occasional reading of the distilling tube. When this reading has been constant for about 30 minutes, the determination is completed. Since the boiling point of toluene is 110°, this is the maximum tempera-



Legend

A—1 Liter Wide-Mouth Flask —5346
B—Distillation Tube —Special
C—Condenser—40 cm Long —3905

Alternate Apparatus

D—1 Liter Florence Flask —5324
E—Distillation Tube —7618
Calcium Chloride Tube should be attached to Condenser at F.
Numbers are A. H. Thomas Catalogue Numbers
Technical Department—E. J. Lavino and Co.

Analysis Apparatus

Analysis of Oxides

(a) Moisture—The moisture is determined on a sample of 20 to 50 grams (depending on the moisture content of the material) by distillation in toluene.

(b) Fe_2O_3—Ten grams of a representative sample of the material as received are dissolved in 125 cc of 1:1 HCl. The solution is cooled, made up to 500 cc in a volumetric flask, and filtered through a dry paper and dry funnel into a dry beaker.

A sample of fifty cc of the filtrate (= 1.0000 gram of oxide) is pipetted into a 250 cc. beaker, about 50 cc of water are added, the solution is heated to boiling, and the iron is precipitated as $Fe(OH)_3$ by the addition of a slight excess of NH_4OH. The solution is filtered, the precipitate washed with hot water, and the paper and residue are placed in a 300 cc Erlenmeyer flask. Fifty cc of 1:8 HCl are added, and the flask is warmed until all the iron is dissolved. The flask is placed in a hot water bath (40°C) and when it has come to the temperature of the bath 5 cc of a 40% solution of KI are added, the flask is tightly stoppered immediately, and allowed to stand in the bath at 40°C for 30 minutes. The flask is cooled in a cold water bath, the stopper is removed, and the sides washed down with cold water. The liberated iodine is titrated with N/10 sodium thiosulphate solution, using starch as an indicator.

The sodium thiosulphate is standardized against pure iron wire, or some other compound of known iron content.

(c) Total CaO—The filtrate from the iron precipitation is made slightly acid with acetic acid, heated to boiling and 50 cc. of a 10% solution of sodium oxalate are added. The solution is allowed to simmer until the precipitated CaC_2O_4 has settled and becomes granular. It is cooled to room temperature, filtered and the precipitate is washed with hot water. Paper and precipitate are dropped into a 400 cc beaker, 200 cc of water and 20 cc of 1:1 H_2SO_4 are added, the solution is heated to 90°C, and the CaO is determined by titration with N/10 $KMnO_4$.

(d) Active Alkalinity—One gram of the oxide is treated with 100 cc of a 10% solution of sugar. The solution is allowed to stand for about two hours, during

which time it is stirred at regular intervals. It is titrated with N/10 H_2SO_4, using phenolphthalein as an indicator. The active alkalinity may be reported as either CaO or Na_2O, calculated from the cc. of H_2SO_4 required.

(e) Total alkalinity—One gram of the oxide is treated with an excess of N/10 H_2SO_4, allowed to stand at room temperature for 60 minutes, and the excess acid is titrated with N/10 NaOH, using methyl red as an indicator. This determines the total alkalinity, and is expressed either as CaO or Na_2O.

(f) CO_2—When the oxide contains CO_2 it should be determined, especially if Kunberger tests for capacity are to be made. The percentage fouling as determined by the Kunberger method consists of determining the increase in weight obtained by saturating a weighed sample of the oxide with H_2S. As CO_2 may be lost during this procedure, a low fouling, which would not indicate the true amount of H_2S absorbed, may result.

The apparatus used for the determination of CO_2 consists of a U-tube containing ascarite, a 500 cc. Florence flask, a $CaCl_2$ tube, and a second ascarite tube, connected so that air can be drawn through them in the order named. One to five grams of a representative sample of the oxide as received (depending on the CO_2 present) are weighed into the Florence flask, 100 cc. of 1:1 HCl are added, and the flask is heated by a low Bunsen burner flame. A slow current of air is drawn through the apparatus, so that any CO_2 evolved will be drawn first through the $CaCl_2$ and then through the second ascarite tube. The first ascarite tube prevents the entrance of any CO_2 from the air. The increase in weight of the second ascarite tube is the CO_2 in the sample.

A Meyer sulphur bulb can be placed after the Florence flask in place of the $CaCl_2$ tube and the second ascarite tube. This bulb is filled with 80 cc. of a saturated solution of $Ba(OH)_2$, and the gas evolved in the decomposition of the sample is bubbled through the bulb. When decomposition is complete, the precipitated $BaCO_3$ is filtered on a Gooch crucible, washed, ignited, weighed as $BaCO_3$, and calculated to CO_2.

(g) Na_2O—One gram of the sample is dissolved in 10 cc. of HCl, and the iron is precipitated by the addition of a *slight* excess of NH_3. *The volume of the solution must be kept as small as possible.* The iron precipitate and the insoluble residue is filtered off, the residue being discarded. The solution is heated to boiling and two drops of H_3PO_4 are added. If any precipitate forms it is filtered off and discarded. Two or three drops of $FeCl_3$ solution are added the solution is boiled, and enough NH_4OH is added to just precipitate the excess Fe. The solution is boiled for two or three minutes and filtered. The filtrate is evaporated to nearly dryness on the water bath, two or three drops of H_2SO_4 are added, and the dish heated to a temperature sufficient to drive off the excess H_2SO_4, but not high enough to decompose Na_2SO_4.

The residue in the dish is Na_2SO_4, which is calculated to Na_2O.

Analysis of Unused Sponge

Preparation of the sample—A representative sample of the sponge is well mixed, 500 grams are air dried in a shallow pan, and the loss in weight noted. Due to the size of the shavings, it is impossible to obtain representative samples for analysis without some grinding, and a coffee mill was chosen for this purpose because it will reduce the size of the shavings, but will not appreciably reduce the particle size of the oxide. Care is taken to lose as little of the material as possible during grinding. The shredded sponge is separated into two portions by screening through a 40 mesh screen, and these portions are labeled "coarse" and "fines." The "coarse" is weighed, any loss due to dusting, etc. being considered as part of the "fines." The sample now consists of two portions, and the percentage of each portion in the original is known.

(a) Moisture—The moisture is determined on a 100 gram sample, made by weighing the proper proportions of "coarse" and "fines," by distillation in toluene. The residual moisture thus determined added to the moisture lost in air drying is the total moisture in the sample.

(b) Fe_2O_3—A ten gram sample, made of the proper proportions of "coarse" and "fines," is treated with 125 cc. of 1:1 HCl, and boiled until all the iron is dissolved. The solution is cooled, made up to 500 cc. in a volumetric flask and filtered. A sample of fifty cc. of the filtrate (= 1.0000 gram of sponge) is pipetted into a 250 cc. beaker, and 25 cc. of H_2SO_4 are added to the solution. The solution is boiled to fumes of SO_3 and any organic matter is oxidized by the addition of HNO_3. The HNO_3 is added drop by drop, allowing the solution to fume after each addition. When a clear colorless solution is obtained all the organic matter has been oxidized, the solution is allowed to cool and is diluted to about 150 cc. The solution is heated to boiling, and the iron is precipitated as $Fe(OH)_3$ by the addition of a slight excess of NH_4OH. After boiling several minutes the solution is allowed to stand until the precipitate settles, and the $Fe(OH)_3$ is filtered off and washed with hot water. The paper and the residue are dropped into a 300 cc. Erlenmeyer flask, 50 cc. of 1:8 HCl are added, and the flask warmed until all the iron is dissolved.

The flask is placed in a hot water bath (40°C) and the iron is determined iodimetrically, as described under "Oxides."

(c) Whenever the analysis of the oxide from which the sponge was made is known, the percentage of oxide in the sponge is calculated by the following formula:—

$$\frac{\%Fe_2O_3 \text{ in sponge (As Rec'd)}}{\%Fe_2O_3 \text{ in oxide (As Rec'd)}} \times 100 = \%\text{Oxide in Sponge}$$

Analysis of Used Sponge

Preparation of the Sample—The sample is well mixed, and dried to constant weight at 110°C. The loss in weight is recorded as "Moisture plus Light Oils." At the same time the moisture is determined on a sample of 20 to 50 grams, depending on the moisture content, by distillation in toluene.

The dried sample is shredded in a coffee mill and divided into two portions, "coarse" and "fines," as described under "Unused Sponge."

A ten gram sample composed of the proper proportions of "coarse" and "fines" is weighed into a 400 cc. beaker, and treated with 25 cc. of a 40% solution of NaOH and 100 cc. of a 15% solution of sodium hypochlorite. The solution is allowed to simmer on the hot plate for 20 to 30 minutes, until all the sulphur is in solution and oxidized to Na_2SO_4. The solution is acidified by *pouring into* an 800 cc. beaker containing 100 cc. of HCl, and it is boiled until all the iron has been dissolved. It is cooled, diluted to 500 cc. in a volumetric flask, and filtered through a dry paper and dry funnel into a dry beaker.

(a) Fe_2O_3—A sample of 50 cc. of the filtrate (= 1.0000 gram of sponge) is pipetted into a 250 cc. beaker, 25 cc. of H_2SO_4 are added, and the iron is determined as in unused sponge.

(b) Sulphur—A sample of 50 cc. of the filtrate (= 1.0000 gram of sponge) is pipetted into a 400 cc. beaker, taken to dryness and dehydrated on the steam bath. Five cc. of HCl and about 175 cc. of water are added, the solution is boiled several minutes and filtered, the residue being washed with about 25 cc. of hot water. The filtrate is heated to boiling, 50 cc of a 10% solution of $BaCl_2$ are added, and the precipitated $BaSO_4$ determined in the usual way.

(c) Free Sulphur and Tar:—A 5 gram sample composed of the proper proportions of "coarse" and "fines" is placed in a thimble and extracted with CCl_4. When the extraction is complete, the CCl_4 is distilled off, the residue dried at 110°C, and weighed. The residue is tar plus free sulphur.

The residue is treated with 25 cc. of a 40% solution of NaOH and 100 cc of a 15% solution of sodium hypochlorite and allowed to simmer on the hot plate until all the sulphur has been dissolved and oxidized to sulphate. The solution is acidified, boiled for several minutes and filtered. The filtrate is heated to boiling, 50 cc. of a 10% solution of $BaCl_2$ are added, and the sulphur determined as $BaSO_4$ in the usual manner.

The percentage of tar is obtained by difference.

(d) Light Oils—The percentage of light oils is determined by the difference between "moisture plus light oils" and "moisture".

(e) Naphthalene—A five gram sample (or smaller if the percentage of napthalene is high) is weighed into a U-tube, which is then placed into a beaker of water. The U-tube is connected by short rubber tubes to a series of four wash bottles, each containing about 25 cc. of N/20 picric acid, in such a way that air drawn through the sample tube will bubble successively through the picric acid in each of the wash bottles. The water surrounding the sample tube is heated to boiling, air is drawn through the tube, carrying the naphthalene into the picric acid bottles, where it is precipitated as naphthalene picrate. The naphthalene picrate is filtered on a Gooch, using a single thickness of paper, washed with N/10 picric acid, ***not water,*** and dried by suction. Cutting a filter paper into small discs, using a five cent piece as a measure, is a very convenient method of preparing papers for Gooch crucibles. Paper and residue are placed in a 500 cc. flask, 200 cc. of water are added, and the naphthalene is expelled by boiling for two or three minutes. There should be no odor of naphthalene in the fumes leaving the flask. The picric acid is titrated with N/10 NaOH, using methyl red as an indicator. The reactions are as follows:—

1. $\underset{\text{Naphthalene}}{C_{10}H_8} + \underset{\text{Picric Acid}}{C_6H_2(OH)\ (NO_2)_3} = \underset{\text{Naphthalene Picrate}}{C_{10}H_8.C_6H_2(OH)\ (NO_2)_3}$

2. $\underset{\text{Naphthalene Picrate}}{C_{10}H_8.C_6H_2(OH)\ (NO_2)_3} + \underset{\text{Steam}}{H_2O} = \underset{\text{Napthalene}}{C_{10}H_8} + \underset{\text{Picric Acid}}{C_6H_2(OH)\ (NO_2)_3}$ (Volatile)

3. $\underset{\text{Picric Acid}}{C_6H_2(OH)\ (NO_2)_3} + \underset{\text{Sodium Hydroxide}}{} = \underset{\text{Sodium Picrate}}{C_6H_2\ (ONa)\ (NO_2)_3} + H_2O$

$1\ NaOH = 1\ C_6H_2\ (OH)\ (NO_2)_3 = 1\ C_{10}H_8$

Public or Private Ownership?

By Julius H. Barnes

American Vice-President, International Chamber of Commerce

AMERICA is profoundly stirred by mixed emotions in thus presenting, at the request of its European colleagues, the convictions of American business on Public and private Ownership. National pride is restrained by a sober sense of responsibility. President Pirelli in public utterance recently expressed his competent judgment in these words:

> "Turning now to the United States of America, I know no more extraordinary instance of practical energy. I know no more striking lesson of economic organization. To us Europeans the progress of the United States is astounding."

We are appreciative besides, that President Pirelli has also on public occasion expressed a realization of the idealism of the American people. This background of sympathy and understanding assures us that in what we wish to say on behalf of America we shall come before kindly judges.

There exists a profound difference in tradition, a contrast in historical circumstance, by which the accepted concept of the relations of Government to its people has developed in these different worlds. We possess certain aids in our national progress, inherent in a new land of undeveloped resources. America was free to enlist the best proven practices of the Old World and re-adapt those methods free from any restraint of established tradition or custom.

In this new land of wide extent, centralized government of strong authority was never present. Outpost settlements pushed the frontiers of America across three thousand miles of unbridged rivers, roadless mountains, trackless forests and vast prairies, and forced a self-reliance on isolated communities that has colored our whole political concept.

Part of an address given before the Fifth General Congress, International Chamber of Commerce, Amsterdam, July 12 1929.

America's realism studies the economic indicators of national attainment as a measure of past progress and a chart of future courses. But also America's idealism interprets those economic factors into the human terms which give them life and vitality. The great totals of national wealth, the evidences of industry on gigantic scale, may fail to justify themselves before the world, unless they are clearly accompanied by widespread individual possession and enlarged opportunity for health, security and enjoyment of all the people. America believes that the indicators of material progress interpret themselves strikingly into advancing living standards. America believes that, because this is true, and because the average of individual possession and use is clearly widening, that there is a crystallized public opinion controlling its political philosophy of government. America believes that the extraordinary instance of practical energy of which President Pirelli spoke is based on an unusual stimulant to individual effort, inherent in the social and political philosophy of this new land.

Striking Economic Indicators

How striking these economic indicators are, and how precious their significance to individual lives in shown, we believe, in a few short tables, thus:

National Income of United States

1890	$12,082,000,000,	equalling	per	capita,	$192
1900	17,965,000,000	"	"	"	236
1910	30,530,000,000	"	"	"	332
1920	72,380,000,000	"	"	"	680
1928	90,000,000,000	"	"	"	750

As indicative of the enlarging margins of savings in the personal income of an increasing number of individuals we cite these two special tables:

Savings Deposits of United States

	Total deposits	*Estimated number of depositors*	*Per Capita*
1900	$3,500,000,000 (est)	8,000,000	$46.05
1910	6,835,000,000	16,372,000	74.00
1920	15,314,000,000	22,415,000	144.00
1928	28,412,000,000	53,188,000	237.00

Life Insurance in Force in United States

	Amount of policies in force	*Number of policy holders*
1900	$8,561,000,000	8,000,000
1910	16,404,000,000	17,000,000
1920	42,281,000,000	39,000,000
1928	96,671,000,000	65,000,000

So also the widespread distribution of buying power in America is indicated by its 25,000,000 automobiles, and its 19,000,000 telephones. In 1928 it possessed one automobile to every six persons.

* * * *

The convenience and the enjoyment of a people do not readily submit themselves to economic tables, but security of health and living has clearly followed the general development of perfected refrigerators, of glass and metal containers for preserved foods, of household cleanliness that has followed the home vacuum cleaner, the equably maintained temperatures of the automatic heater.

This contributed to the fall in the death rate of the United States from 17 per 1,000, the average of twenty years ago, to 12 per 1,000, the average of these recent years. That means the equivalent of 600,000 less deaths per year today than on the standards of twenty years ago.

These tables will indicate to you how precious a meaning lies behind the living standards of America. Here is no single question of the profits of privately conducted industry, but the demonstration that living standards which equip the average home with the devices of modern profit industry make for a security of living which even holds death itself at bay, for spaces.

* * * *

We emphasize that mere possession of natural resources could not be the source of national wealth and individual prosperity, except that natural handicaps of long distance transportation and of high individual wage-scales are offset by unusually inventive ingenuity and organization genius, followed by limitless capital investment. Every device of economy must be, successively invented, discarded, and again replaced.

It is well here to note that, increasingly, there is accepted in America a philosophy that a wide market for the thousand products of industry depends not alone on adequate buying power but also on reasonable leisure to enjoy and use those products. For example, the New York newspapers fifty years ago carried the advertisement of New York's elevated railroads charging doubled passenger fares during the "rush-hour" of 5:30 to 7:30 a. m. Manifestly a working day of that length would have afforded no opportunity for the wide use of such a facility as the automobile, even had buying power been present in wage-scales of that day.

Reasonable working hours and high wage-scales justified by large average production per worker are now understood to be the very life of a market for large scale production.

* * * *

In the field of public utilities, for light and power service, there is the same record of extraordinary efficiency in development and in administration. A vast interconnecting net-work reservoir of electric power, both coal-generated and hydro-generated, has resulted in distributing peak loads so economically as to reflect in lowered charges, rates being now lower than pre-war basis. This again has resulted in constantly widening circles of use. Last month, the Report of the President's Committee on Recent Economic Changes made the statement that, in the last seven years the rise in the use of power had been three and three-quarter times faster than the growth in population. Today seventy-five per cent of American factories are electrified. Broadly speaking, today, no community no matter how sparsely settled lacks its 24-hour service for industry and household service.

* * * *

Governments may imitate the practices of private enterprise and here and there may occasionally register some advance, but I submit that in these great fields of transportation, communication and electric utilities the significant accomplishments are in overwhelming measure the product of private enterprise. And looking to the future, where lie great realms of scientific discovery and application into the frontiers of which we as yet have barely penetrated, it behooves us to preserve that divine spirit of individual initiative which, for the future as in the past, has such great potentialities for public benefit.

Far-Visioned Regulation

These three monopolistic public services are regulated by public bodies protecting the public interest through continuous and flexible control of charges and practices, always subject to appeal through the established courts as high as the national Supreme Court itself. But these regulatory policies within these recent years have been far-visioned and intelligent enough to favor such generous treatment as facilitates the attraction of large

capital for continued development. Regulation has come to mean not suspicious control alone, but rather cooperation and stimulation. Public servants entrusted with regulation have shown, in the main, far-seeing statesmanship. The policy of regulation will, of course, develop defects under test at times: but its chief value is that it is developing a relation of Government and Industry based on common interest and mutual confidence. In that spirit, it can be made helpful and stimulating with no loss of sturdy protection of the public interest.

* * * *

In the light of the enormous expansion of all industry resting on these three basic facilities and in the light of the steady rise in average living standards of all our people, there are few indeed in America who do not today realize that it is more important to have adequate and efficient service than it is to force an unwisely low level of charges that might check expansion and improvement.

* * * *

Organized Labor's Views

The leadership of Organized Labor in America early recognized the futility of opposition to labor-saving machines, and of rules of restricted output. It took, instead, the advance ground of demanding a recognition in higher wage-scales of the increased production of each worker. This attitude has been justified by the rising average welfare of both organized and unorganized labor. Moreover, the leadership of organized labor, having accepted an established principle of higher wages resulting from higher individual production, recognized also that government industries were inherently more slow in enterprise, less resourceful in adapting the means of higher production, and therefore less likely to make higher wages possible. Organized labor has therefore, in several recent official utterances, opposed Government ownership of industries, condemned State control of Labor and Industry, under any guise.

* * *

There is today on the part of both employers and employees a growing appreciation of a certain fundamental philosophy of industry which runs something in this order:

> Large scale output can be marketed only on widespread buying power.
>
> Widespread buying power rests on continuous employment adequate wage scales and earnings.
>
> High wages and reasonable leisure must be maintained by high individual production per worker.
>
> High production per worker is secured only through machine and power equipping of the worker.

This means that resourceful and progressive industry must be prepared to invest in buildings and equipments large capital sums. It must be prepared for such revolutionary invention in their particular line of industry as to render perhaps such investments valueless, and necessitate a new investment again of large capital sums in re-designed equipment. This has developed strikingly in the last few years. The closed automobile and the equally heated home, plus the shifting of women's taste in wear to silk instead of wool, almost destroyed a great wool industry. Cotton felt severely the change of women's style and the rise to silk standards instead of cotton, but another shift in women's taste may rebuild the great industry. Silk is battling for popular favor with rayon, the product of the research laboratory.

The point is that, throughout all industry there must be a willingness to venture great capital investment such as was never necessary before this machine and power era of the past few years. Capital is properly timid, unless there is assurance of a fair field and the stimulant of reasonably expected profits. Capital is not a lifeless thing, but an agency directed in the last analysis by the individual, and that individual, by observation and judgment, made either fearless or timid.

* * * *

Inevitably the very possibility of extension of government footing once attained in industry, would tend to halt the confident venturing of large capital into old and new lines of industry. Inevitably there would be a loss of enterprise and energy in every line of industry, immediately or indirectly, menaced.

* * * *

National progress is, after all, always the aggregate of individual attainment. Individual attainment is the result of individual effort and ability. Individual effort may be stimulated or suppressed by the conditions under which it must strive. Here again, last Fall, Herbert Hoover expressed the philosophy of Government under which individual effort is stimulated, when he said:

> "The American system is founded upon the conception that only through ordered liberty, freedom and equal opportunity to the individual will his initiative and enterprise spur on the march of progress."

And again, he expressed this underlying philosophy:

> "Business progressiveness is dependent on competition. New methods and new ideas are the outgrowth of the spirit of adventure, of individual initiative and of individual enterprise. Without adventure there is no progress."

The evils of Government-operated industry are again expressed, recently, by Herbert Hoover:

> "The Government in commercial business does not tolerate amongst its customers the freedom of competitive reprisals to which private business is subject. Bureaucracy does not tolerate the spirit of independence; it spreads the spirit of submission into our daily life and penetrates the temper of our people not with the habit of powerful resistance to wrong but with the habit of timid acceptance of irresistible might."
>
> "It is a false liberalism that interprets itself into the Government operation of commercial business. Every step of bureaucratizing of the business of our country poisons the very roots of liberalism—this is, political equality, free speech, free assembly, free press, and equality of opportunity. It is the road not to more liberty, but to less liberty."
>
> "Even if governmental conduct of business could give us more efficiency instead of less efficiency, the fundamental objection to it would remain unaltered and unabated. It would stifle initiative and invention. It would undermine the development of leadership. It would extinguish equality and opportunity."

Saving the Workman's Eyes

Through a questionnaire addressed to industrial plants, the National Society for the Prevention of Blindness together with the National Safety Council endeavored to ascertain for the first time the instances in which eyes have been saved in industry through the use of mechanical safety devices. Their report states that the experience of 583 industrial plants employing more than 578,000 men and women, during the years 1926 and 1927, indicates that in the two year period 2,757 men and women were saved from serious injury or total blindness in both eyes, and 4,654 were saved from serious injury or total blindness in one eye.

Comparative Summary of Gas Company Statistics

The latest statistics showing the growth of the Gas Industry although not complete for the entire country are nevertheless indicative of the steady advancement being made.

These data and statistics prepared by Mr. Paul Ryan, Statistician, American Gas Association, and reproduced in part herewith, show the Gas Industry to be in a healthy condition and are worthy of careful study on the part of all gas men. Companies which have been slow in reporting their statistics should cooperate to the end that a complete analysis will be available.—Editor.

AN increase of 11 per cent in gas sales for May, 1929, as compared with May, 1928, is indicated by the first 96 companies reporting to the Statistical Department of the American Gas Association. As of May 31, 1929, the customers of these companies aggregated 9,522,956 which is an increase of 2.5 per cent from the corresponding date of the preceding year.

In New England sales of gas for all purposes registered an increase of over 8 per cent for the month of May and of more than 6 per cent for the five months ending with May.

In this territory, as throughout the country generally, the most marked expansion occurred in sales of gas for industrial-commercial uses and for domestic house heating. For the five month period of 1929 gas house heating sales increased 61 per cent in Massachusetts, while in Connecticut gas sold for house heating purposes gained 118 per cent over the same period of 1928.

The Middle Atlantic and South Atlantic regions continued to show relatively smaller increases than other sections, the gain in these two regions amounting to less than 2 per cent for the five month period.

In the East North Central group May sales were 11 per cent above a year ago, but in this region also, relatively the largest gains were effected in industrial-commercial and house heating sales. In Wisconsin industrial-commercial sales for May were 14 per cent above May of the preceding year; in Illinois the gain was 15 per cent while in Michigan industrial-commercial sales increased by nearly 30 per cent.

The data on gas produced and purchased for distribution by these 96 companies show the following significant trends for the five month period:

(1) A 6 per cent decrease in water gas produced
(2) A 12 per cent decrease in coal gas produced
(3) A 39 per cent increase in coke oven gas produced
(4) A 22 per cent increase in coke oven gas purchased from coke and steel companies operating by-product coke oven plants.

The geographical grouping of companies is as follows:

New England States: Connecticut, Massachusetts, New Hampshire and Rhode Island.

Middle Atlantic States: New Jersey, New York and Pennsylvania.

East North Central States: Illinois, Indiana, Michigan, Ohio and Wisconsin.

West North Central States: Iowa, Minnesota, Missouri, Nebraska and North Dakota.

South Central and Mountain States: Alabama, Colorado, Louisiana and Tennessee.

South Atlantic States: Delaware, District of Columbia, Florida, Maryland, and Virginia.

Pacific Coast States: California, Oregon and Washington.

COMPARATIVE STATISTICS OF 96 GAS COMPANIES FOR MAY, 1929

TOTAL UNITED STATES (96 COMPANIES)

	MONTH OF MAY			FIVE MONTHS ENDING MAY 31		
	1929	1928	Percent Increase	1929	1928	Percent Increase
(1) Customers	9,522,956	9,294,365	2.5	See May		
(2) Gas Sales (MCF)	37,028,738	33,357,122	11.0	194,594,619	177,949,854	9.4
(3) Revenue ($)	35,360,932	33,124,668	6.8	184,128,426	176,234,988	4.5
(4) Gas Produced (MCF)						
(a) Water Gas	15,020,281	16,302,407	-7.9	84,011,310	89,083,397	-5.7
(b) Coal Gas	3,160,848	3,606,780	-12.4	15,898,966	18,035,514	-11.9
(c) Coke Oven Gas	3,375,575	2,363,004	42 9	16,212,239	11,698,140	38.6
(d) Oil Gas	2,489,331	2,227,277	11.8	15,151,508	13,066,602	16.0
(e) Total Gas Produced	24,046,035	24,499,468	-1.9	131,274,023	131,883,653	-0.5
(5) Coke Oven Gas Purchased	8,711,780	6,766,334	28.8	40,715,600	33,373,882	22.0
(6) Total Mfd. Gas Produced & Purchased	32,757,815	31,265,802	4.8	171,989,623	165,257,535	4.1
(7) Natural Gas Purchased	7,584,535	5,660,865	34.0	46,288,843	32,678,223	41.7
(8) Total Gas Produced and Purchased	40,342,350	36,926,667	9.2	218,278,466	197,935,758	10.3

Genuine Gas Service

By H. T. East
Assistant to Vice-President, Public Service Company of Northern Illinois.

HEAT has always been an important factor in the lives of civilized people Its use by prehistoric man marked the very beginning of his advancement from the animal state. As additional uses were found for it civilization progressed more rapidly. These uses have multiplied in our complex civilization until today heat is one of the most essential agencies of civilization. The heating requirements of the modern world are many and varied in character. Many heat sources are relied upon but the marvelous growth of the gas business attests the fact that gas is the ideal fuel. Because of the inherent advantages of gas over other fuels the gas industry in America today supplies over ten million customers with a commodity which provides in its most convenient form the heat so indispensable to modern social and industrial existence. With very few exceptions this great body of gas users know little, and care less, about gas, its make-up, manufacture, or distribution. They are not concerned about the form, quality, pressure, or nature of the agency so long as it serves their purpose. In reality they are not buying gas but have their premises piped and contract to pay a monthly amount to the gas company to get certain things done—meals cooked, water heated, space warmed, or other services performed. What the gas company really sells, then, is service and not gas.

Much of the gas industry's present day success is chargeable to the friendliness and mutuality of understanding between the customer and the management. However, we cannot afford to stop; we must continually strive to reach the goal of perfection in our public relations. It is felt that this first article, as well as the eight succeeding ones in the series, will be instrumental in giving us a working plan for bettering relations with the public.

In view of his wide experience as a service engineer with the Illinois State Public Utilities Commission and his Customer Relations activities in the American Gas Association and the National Electric Light Association, the author, Mr. East, is peculiarly well-fitted to handle the subject.—Editor.

The term "service" has been much misused in the industry. It is defined in dictionaries as *"anything* done for the benefit of another." Genuine gas service is much more than an adequate supply of suitable gas at proper pressure. A company whose official feels that its sole obligation to its patrons is limited to these bare essentials seldom renders genuine service. The gas service which is best appreciated and deemed most satisfactory by the customer is often that which, judged by exacting technical or chemical formulas, is inferior to the product of another company which lacks the good-will and confidence of its patrons. Further proof lies in the fact that customers receiving identically the same gas sometimes have widely divergent opinions concerning their service. The user's opinion is largely governed by his opinion of the company itself and this in turn is determined by observations, contacts, and many relatively trivial personal experiences. It follows then that attention must be everything that could possibly affect the ratepayer's opinion if service is to be considered sufficient, genuine, and complete.

The stupendous task of producing gas in quantities to meet the rapidly growing demand, providing for its distribution and at the same time working out economies to make possible lower rates demanded the full attention of the industry's leaders for a long time and in many instances those phases of operation which were of importance from a customer relations standpoint were overlooked. The industry consequently lagged behind competitive industries in the matter of appreciating the customer's point of view. This condition has happily been overcome to a large extent but some gas companies still display by policy or act that they consider their only obligation is to supply good gas at proper pressure. Others have by oversight or failure to realize their importance neglected to do those things which please the user. Such companies are still selling gas and not service.

Opportunities exist in practically every department of an operating company for changes and improvements which will make the service which the customer receives more genuine. There are few things that cannot be improved if a diligent and conscientious effort is made to analyze them through the customer's eyes with thought of making them more agreeable and acceptable. Carefully followed out, this process of improving service can be the means of bringing about many changes in forms and notices, simplification of routines, speedier response to customers' calls, and general humanizing of procedures which, though they may not actually improve efficiency, will make the service more pleasing and desirable to the gas user. No one of these betterments will have a far-reaching effect upon the customer or the service he receives but the cumulative effect of many such changes will mean the difference between excellent and fair service in the customer's judgment.

The first essential in any program to improve service is a realization on the part of the management that opportunity exists for such improvement. This is es-

sential The next step is to make a careful study of every condition, practice, and feature of company operation which could affect the customer in any way and the institution of betterments which will react to the patron's benefit. Such a survey must be conducted by a person capable of considering matters from the customer's point of view. A few of the many things which should be carefully investigated are:

Appearance of public offices.
Facilities provided for accommodation of customers.
Courtesy and tactfulness of employees.
Deportment of employees on customers' premises.
Phraseology of contracts and public communications.
Response to trouble calls.
Attention to leak reports.
Complaint handling.
Telephone facilities.
Quality of telephone contacts.
Service application routines.
Promptness in furnishing new service.
Credit restrictions and bill payment guarantees.
Discounts and handling of discount requests.
Rate structures.
Simplicity of bills.
Arrangements for receiving bill payments.
Delinquent cut-off policy.
Correctness of names and addresses in records.
Service interruption notification.

An analysis of the customer relations problems of representative gas companies always reveals the fact that many detrimental policies, rules, and practices are retained year after year for no justified reason. Instances are sometimes so unbelievable as to force the observer to conclude that no attempt has ever been made to review the organization set-up, service facilities, rules, policies, or procedures to determine their suitability from a customer or public relations point of view. Such analysis is always productive of valuable results even where no glaring violations of recognized standards are uncovered, provided, of course, action is taken to correct and improve those conditions capable of some betterment.

Systematic Surveys Helpful

It goes without saying that the more tangible features, continuity of supply, quality, purity, and pressure should not be overlooked in the search for changes which will please the customer. Conditions deserving attention are often overlooked and continue over extended periods. Systematic surveys to determine compliance with recognized standards have proved to be a most helpful method of bringing to light tangible features of service which are capable of betterment. To be effective such a check-up must cover every phase of production, operation, distribution, and customer attention, even including record keeping. One of the most satisfactory methods of making such surveys has been to draw up a form listing all features of service and have each item inspected at regular intervals by a selected individual, preferably one not directly responsible for the conditions being inspected. This is necessary because it is logical to assume that those doing the work do not recognize or have overlooked shortcomings else they would have been corrected long before. Then too, an outsider coming into a department can oftentimes see opportunities for improvement which those in the department are blind to. The list of items deserving attention will naturally differ with different organization set-ups operating under different plans but the form used by the writer's company and patterned after that used by the state public service commission will serve as a guide. A similar form can easily be prepared for any company.

Under this inspection and grading plan each item is not only checked but is rated on a numerical basis. The grade is, in effect, a figure representing the degree of perfection attained in that particular phase of service. Going further, a composite grade for all features of service may be arrived at by assigning a weight to each item depending upon its relative importance. This service grading plan has proved to have much merit since it periodically focuses attention upon each service feature and provides the management with information which can be used to correct any irregularity. An added advantage is that departmental employees and the organization as a whole may be spurred to greater effort by the incentive of making a better showing at the time of the next grading. Honest self analysis is always helpful.

Nothing remains stationary—we either progress or decline. This is certainly true of service and its resultant effect upon the public mind. To even maintain a reputation or standing already gained requires constant effort and if the place in the public esteem is to be improved a special effort is required. The benefits of any successful endeavors along this line will react favorably to the company as well as the industry of which it is a part.

#1742

GAS SERVICE INSPECTION
PUBLIC SERVICE COMPANY OF NORTHERN ILLINOIS

Local Mgr.		City	Population
Type of Service		District	Inspector
Annual Sales		Date Ins.	Last Ins.
Consumers 19		Supply: Local Works	Pipe Line
Complaints to		Is capacity adequate?	
Handling of complaints		Extensions and alterations	
Refunds for fast meters			
Important changes of staff		Emerg. Prov.	
Is force sufficient?		Pressure in mains	
		Extension Policy	
Attitude		Is force qualified?	
Maintenance: Quality		Tests and inspections	
No. of meters in service			

1. Records and reports.
2. Meter record.
3. Meter test record.
4. Plant record.
5. Complaints.
6. Interruptions (Detailed record attached)
7.
8. Testing facilities.
9. Meter test rate.
10. Meter accuracy requirements.
11. Prepayment meters.
12. Initial meter tests.
13. Installation inspections.
14. Periodic meter tests.
15. Request tests.
16. Adjustment of bills.
17. Pressure regulation. (Record attached.)
18. Pressure surveys.
19. Heating value and Calorimeter equipment.
20. Purity of gas (Records attached)
21. Extension of mains.
22. Information to customers
23. Maintenance of service pipes.
24. Posting of public notices.

Conditions of Service	Weight	Grade	Weighted Score
Pressure including interruptions	30		
Heating value	15		
Handling of complaints	10		
Meter testing	7		
Purity	5		
Consumer's Attitude	4		
Construction and Maintenance	2		
Adequacy of capacity	2		
Provisions for emergency	2		
Adjustment of bills	1		
Billing	1		
Extension policy	1		
Furnishing new service	1		
Pressure surveys and records	5		
Record of complaints	4		
Record of heating value	3		
Record of purity	2		
Record of meter tests	2		
Record of meters	2		
Record of interruptions	1		
		Final Grade	

Form Used in Periodic Inspection and Grading of Gas Service

An Aid to Real Gas Service

AN outstanding feature of the various community offices of the Brooklyn Borough Gas Company is their charm. No better illustration of this can be found in the Ocean Front District than at the Kings Highway office of the company. The above photograph shows a corner in the new office at 1703 Kings Highway where company executives and company patrons discuss business matters in an atmosphere of comfort and friendliness.

Un-understandable Gas Machinery Literature

While at an exposition last October I was interested in a certain exhibit. The subject of the exhibit was not directly a part of my work at the present time but indirectly it is as I have had considerable to do with it in years gone by. In fact at one time I thought I was a shark at it. I should be better acquainted with it at the present time than I am.

The exhibit was not entirely clear to me, but not wishing to display my utter ignorance I did not ask many questions. I asked a few and then took two of the folders along with me which were handed to me. Nearly everything that the salesman had told me was "over my head".

Since that time I have had an opportunity to read these folders. Unfortunately, though, I still do not understand the machines as well as I should. The folders sound as though they were written by a man who knows all about the machines and all about the business and he feels that we readers should know more about the subject than we really do.

Many catalogs, bulletins, folders, and letters are like that. They are "very well written", and are understandable by experts, but all of us are not experts in gas making or in hundreds of other specialties. Writers on technical subjects should learn that they must get down to earth if they really want to TEACH. There are very few things that cannot be made clear, in writing.

W. F. Schaphorst.

The Trend of the Times

By William H. Matlack

TODAY'S news, tomorrow's history, changing trends, kings and knee-breeches, television and talking pictures!

Transcontinental air routes, super-power and sucker market! So runs today's news; so courses the trend of the times.

Tall and tiny apartments, built-in furniture and blue baths!

Industry migrates to the country, capitalist creates five day week; news, news, news; sales potentialities for the progressive ones who are in tune with the times.

Romantic, this thing business,—or ruinous, as you will.

Today a tiny gas flame cools and preserves food while directly above it another bakes, broils or fries. The drudgery of wash-day, furnace firing and the unsanitary garbage can have all been banished from the modern home.

Where Cleanliness Starts

"Cleanliness starts at the faucet" while the tinted testimonial, insidious advertising and high-pressure selling of yesterday, seems silly and supercilious.

Men, money and markets, with capacities for consumption; somebody wanting your wares all the time; a waiting market for what you have!

The active mind of the modern merchandiser analyzes these trends, for his eyes are on tomorrow's markets which offer bigger fields of conquest.

Somebody conceived the idea of treating human ills by exposing the body to the rays of the sun and, presto, a dozen industries were affected over night. Suntan became the vogue. Chemists created cosmetics, lighting experts lamps, while the modiste modeled the sun-back gown. The trend of the times. No man can long survive in the merchandise marts who is not alert and ready to meet tomorrow's trends.

* * * * *

In the year A. D. 1816, on the 13th of June at Peale's Museum, Baltimore advertised a display of gas lighting. Three days later, June 17th. the first gas company in the United States was founded. Eight months later, February 5th, 1817, it was incorporated as The Gas Light Company of Baltimore Starting from scratch, the sale of gas (largely for lighting purposes) reached 35,000,000* cubic feet annually by 1846, and somewhere in the neighborhood of 700,000,000* cubit feet annually in the city of Baltimore by 1879. A remarkable achievement, but lo!

William H. Matlack

Hear ye!, Hear ye!! WUXTRA! WUXTRA!!

The *New York Herald* on December 21st, 1879, announced a new invention; "Edison's Light" produced by passing a current of electricity through and heating a carbonized filament of "Bristol" card board to an incandescent state; creating a light which burned "without gas or flame, cheaper than oil". Bottled light became the trend of the times.

However this new light had to be merchandised and developed. During this period when electric lamps were being developed, gas lamps were also being developed and improved, reaching a point where, as late as the early 1900's, gas men maintained that gas light would ever reign as the ideal artificial illuminating agent, and as one manufacturer advertised "even rival the sun."

Result of Merchandising

Electric men did not agree and continued conducting numerous experiments. By 1914, or thereabouts, gas men took cognizance of the rapid strides this new light was making in the domestic or home field and realized the inroads being made in the commercial and industrial lighting fields. The trend of the times pointed to electricity as the future artificial lighting agent. Today, fifty years after the birth of the bottled light, gas lighting is passe and peoples the world over are celebrating Light's Golden Jubilee.

At this writing, June 1929, it is estimated that 19,000,000 of the 27,000,000 homes in the United States are lighted with electricity and the industry is busily working to devise plans to light the remaining 8,000,000.

Gas lighting turned over its toga, not so much to a light as to methodically modeled merchandising plans, conceived by masters of the art of distribution. Men with vision and ideas, and a willingness to work and take a chance brought electric lighting to the fore and captured a vast market from the gas industry.

(* estimated)

Vision Will Be Needed

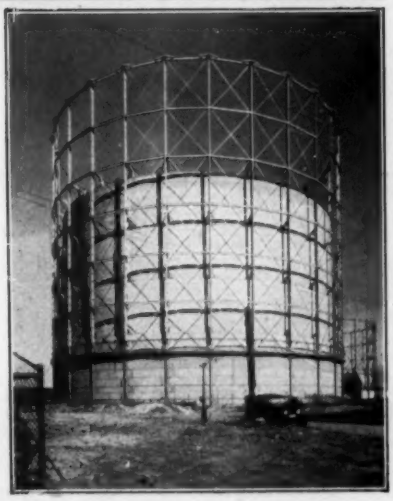
No matter what we may think as individuals, collectively, as gas men, we must feel that if the use of gas is to be developed and increased for cooking, water heating, auxiliary and house heating, incineration, refrigeration and the several uses it may be applied to in connection with the home laundry and for garage heating, we will need to vision the development of these uses through the eyes of the modern merchant. We will have to tell folks what gas will do for them; we will have to tune into the mode and manner of the times.

There has been some complaint that "the manufacturers of gas appliances do not do the amount of National advertising that the manufacturers of electrical appliances do; that dealers are not furnished with the helps, and the man power". These are good alibis for apathy, but they are not tunes of the times. A careful survey of the number of gas appliances manufactured, the number of manufacturers, the number of re-sale outlets for gas appliances and the number of plans and helps furnished by the manufacturers of gas appliances compared with those of the electric manufacturers and re-sale outlets for electric appliances, will quickly convince anyone that the lack of sales of appliances is not chargeable to the manufacturer. Somewhere someone is not in tune with the times.

Plans are furnished by the manufacturers of all major gas appliances; dealer helps, in the way of inserts, broadsides, bill stickers and window and store display cards, and newspaper mats are all furnished free and man-power is often

(Continued on page 51)

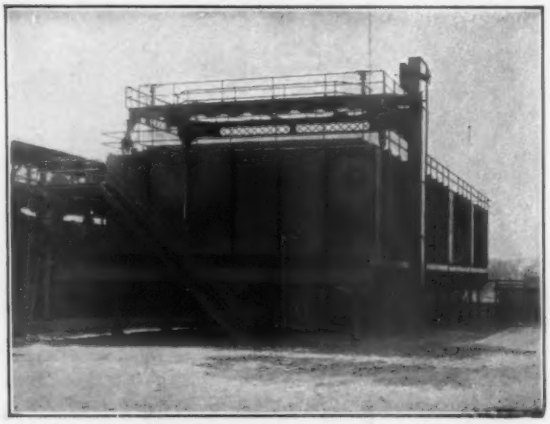
"Built to Insure Good Service"



The "Stacey Bullet", to paraphrase the slogan of the Columbus Electric and Power Co., which appears on the pair of "Stacey Bullets" shown above is "Built to Insure Good Service" to every Gas Company and consequently "Good Gas Service" to the community.

The "Stacey Bullet" is a most practical and economical form of high pressure storage. Any number of sections can be added as required, thus making it an investment that pays generous dividends in utility, longevity and ample service as needed

The Ten Million cubic foot holder at Buffalo, N. Y., shown here was likewise "Built to Insure Good Service." Long Beach, Calif., has also been well served by a Stacey Bros. Ten Million Holder and now the Pacific Gas & Electric Co., has ordered a Stacey Bros. Ten Million to serve San Francisco.



Stacey Brothers Purifiers are built with characteristic thoroughness, reducing to a minimum the cost of operation and maintenance.

Acquaintance with our facilities, policies and methods will prove to you our

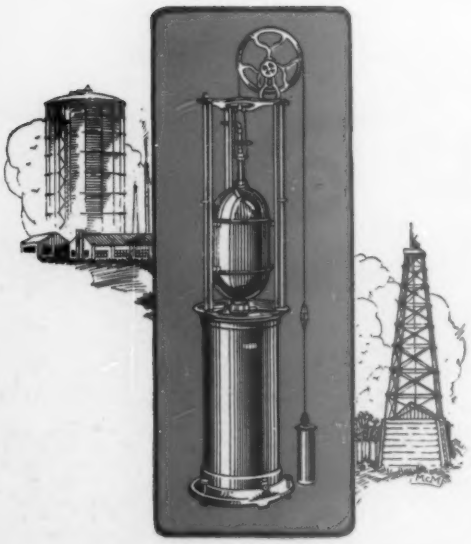
"Ability to Serve"

STACEY BROTHERS GAS CONSTRUCTION CO.

CINCINNATI, OHIO

JAMES E. STACEY, Pres.
ARTHUR A. POPE, Sec. and Treas.
ANDREW J. STACEY, Vice-Pres.
WILLIAM A. MILLER, Chief Eng.
WAYNE STACEY, Gen. Sales Mgr.
P. C. RODGERS, Asst. Sales Mgr.

NEW YORK OFFICE—75 West Street—P. F. McEnaney, Mgr. Tel. Bowling Green 8186
New England Representative—Eastern Service Co., Boston

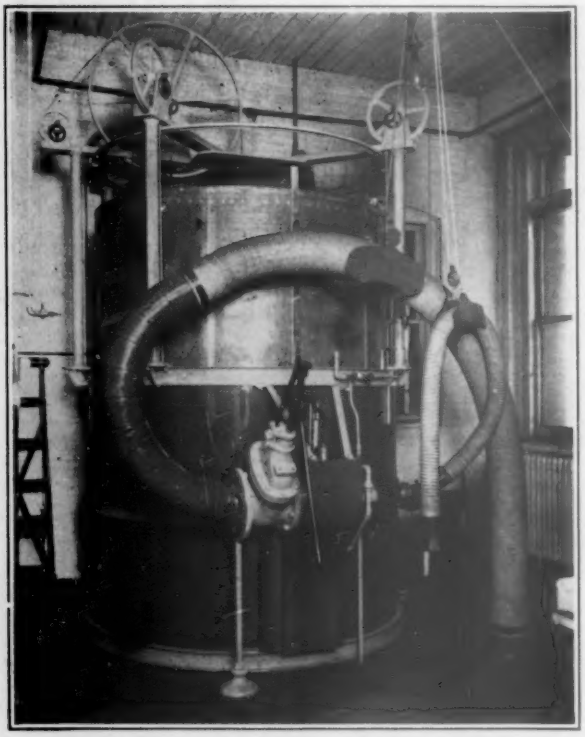


The Cubic Foot Bottle—certified for accuracy by the U. S. Bureau of Standards—symbolizes the enduring standards of measurement maintained by American Meter Company in all manufacturing and laboratory activity.

The Higher Standard

FOR proof of the Correctness of Gas Meter Registration, the vast majority of Gas Company Proving Rooms rely on the "American" Meter Prover.

This instrument has deservedly become the accepted standard for accurate proof:—Unsurpassed quality, craftsmanship and practical experience enter into its manufacture.



A 100-foot Meter Prover constructed by D. McDonald & Co. This prover is particularly adapted to the testing of large capacity meters.

OTHER APPARATUS RECOGNIZED AS STANDARD

Meter Testers — Hydro Pneumatic

Wet Test Meters

Specific Gravity Apparatus

Sulphur and Ammonia Test —Referees' Apparatus

Hydrogen Sulphide Test

Siphon Gauges

Thermometers

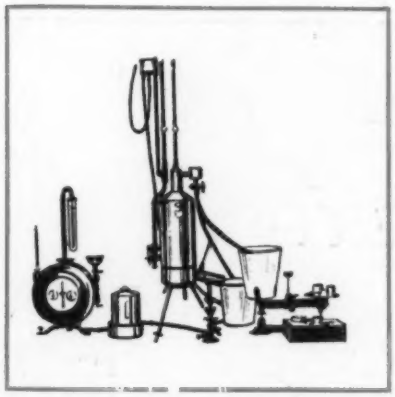
Laboratory Governors or Regulators

New Improved Siphon Gauge 4, 6, 8, 10, 12 inch sizes.

In Proving Room Equipment

The Apparatus Department of American Meter Company factories is equipped to furnish Meter Provers in any required size. Their accuracy is vouched for by calibration with the Cubic Foot Bottle certified by the U. S. Bureau of Standards.

Prompt service, intelligent cooperation and complete information is at all times available.



The Improved American Calorimeter

This thoroughly accredited instrument is unsurpassed for determining accurately the calorific values of gas. In the many laboratories where the American Calorimeter is being used, it is prized as an indispensible part of accurate equipment.

STANDARD SIZES WITH BRASS TANK AND COPPER BELL

2-foot prover (No. AL 12)
5-foot prover (No. AL 13)
10-foot prover (No. AL 14)
20-foot prover (No. AL 15)

Other required sizes are manufactured on order—including the 100-foot prover illustrated.

AMERICAN METER COMPANY
JOHN J. GRIFFIN & COMPANY
HELME & McILHENNY
MARYLAND METER WORKS
D. McDONALD & COMPANY
METRIC METAL WORKS
NATHANIEL TUFTS METER WORKS
PACIFIC METER WORKS

AMERICAN METER CO. MEASUREMENT ENGINEERS CUBIC FEET

Literature and other information available on request.

Proving room equipped with 23 standard American Meter Company provers in 2-foot, 5-foot and 10-foot sizes.

D. McDONALD & COMPANY

Established 1855

991 Broadway, Albany, New York

AMERICAN METER COMPANY
INCORPORATED

"INDUGAS"

VERTICAL CHAMBER OVEN

With Water-sealed Drop Door

INTERMITTENT TYPE

Minimum Labor
Low First Cost

The annual operating reports of the Association of Swiss Gas Plants disclose that the "INDUGAS" ovens produce the largest yields of gas per ton of coal.

The following table shows the actual average yields from coal containing less volatile matter than the average American coal:

City	Time	Yield cu. ft. per net ton	Heating value B.t.u. (gross)
Baden, Switzerland	4 years average	14075	560
Olten, Switzerland	2 " "	13317	570
Friedrichshafen, Germany	4 " "	16045	515

There's a Reason

Full information, layouts and estimates gladly furnished

INDUGAS COMPANY, Inc.

114 LIBERTY STREET, NEW YORK

The Trend of the Times

(*Continued from page 46*)

thrown-in. Some manufacturers go so far as to furnish special advertising copy, as well as cut and lay-out service. They are in tune with the times. If information furnished by manufacturer's representatives is to be relied upon, (and we are of the opinion that it is) then as merchandisers a great many gas men are mediocre. Apathy and an alibi that the management is not aggressive, so they say, is their answer to the question; "why can't we stage a stupendous sale?" This may be the reason why in certain situations, we hear that the domestic load is taking the gas lighting route and the prediction that "in the not far distant future home cooking and water heating will be done electrically." So it seems, where there is a drop-off in the sale of gas per domestic meter, no blame can be laid to the lack of interest on the part of the manufacturer.

"We have never heard of a board of directors who disapproved of new business. We have heard of many who are interested in the quantity secured and of some who, being in tune with the times, were interested in the quality.

Change in seasons, change in buying and living habits, transportation and amusement habits all affect merchandising, the sale of gas appliances, and the sale of gas per domestic meter. Change is "the elixir of existence" if we wish to make the most of it, by tuning into the trends of the times. Department stores in a mid-western metropolis closed their doors all day Saturday during the months of July and August, 1928. But 1929 finds these same shops open all day Saturday the year 'round. Stenos, salesmen, spenders in all walks of life, carrying cash, (the weekly or semi-monthly pay envelopes,) and having time and definite concepts of what cash will accomplish, are Saturday shoppers.

Just how these ever-changing human demands and desires are affecting the sale of gas appliances must be studied by the companies affected and their findings reiterated to the industry at large. Each community holds its own problems and sales potentialities, has its own precepts and peculiarities and must be treated accordingly to tune the sale of gas per domestic meter into the times.

Within thirty days from the day this is published many gas men will have had two weeks or more away from their desks vacationing and clearing their brains of the petty things of the days work, they will have had time for reflection and should be in shape to plan their sales work and work their sales plan for the balance of the year. They should be fit to tune in with the times to sell their customers on the value of gas and the carefree fuel as a servant in their homes, for more and better cooked foods; in the satisfaction to be derived from the continuous flow gas water heater; the coziness and beneficial results to be had through the use of a radiant gas fire installed in the empty fire place; the freedom from soot and grime derived by installing a gas furnace; the burden of wash day removed by equipping the home laundry with a gas dryer, washer and ironer, the saving in food spoilage and the delights of frozen desserts and the golden silence of the gas refrigerator.

Tune 'em in with the times.

This Should Help

One gas man tells us that he is planning to have a big drive to sell gas ranges in September and is going to call his sale the "Fall Round-up Sale". He will endeavor to round-up every old gas, coal, wood and oil stove in town by giving an allowance of ten dollars for it and applying the amount, plus two dollars, as the

down payment on a new insulated gas range that he has taken on for the sale and which he will not advertise or attempt to sell until that time. Another man is offering all purchasers free canning lessons and two dozen fruit jars with each range purchased this month. A mid-western sales manager is planning a last drive on storage water heaters during September. The heaters will be sold at the regular price on terms of one-thirteenth down with the order and twelve months to pay the balance. A special bonus to salesmen of five dollars over and above regular commission will be paid on every heater sold during the month.

Manufacturers' Ammunition

The gas man who is seeking ideas to stimulate the sale of ranges, water heaters, radiant gas heaters, house heating boilers and furnaces, laundry dryers, re-

frigerators or incinerators is offered an abundance of ammunition for fall use. Manufacturers of these appliances are offering sales plans, booklets, inserts, advertising mats and window display material this year as never before. Some of it is very carefully worked out and all that we have seen so far holds ideas of value for those who will use them.

We want to repeat that "for those who will use them" no plan, no amount of help is worth a tinker's damn unless it is laid out and followed on a definite plan or schedule. Inserts piled on a shelf in the back room, advertisements run with "*dealer's name here*" or mailing campaigns that are not followed-up by salesmen are wasted ammunition.

Advertising material offered by the manufacturer should be accepted only after due consideration as to how it is to be used and followed up. With a buyer's market and a big one such material, if followed up by courteous, intelligent representatives, will prove very productive.

It Can Be Done

G. H. Schlatter, new salesmanager at Birmingham, made his bow in that city by selling eighty-eight gas refrigerators during his first month's activities. It can be done!

The Kansas City Gas Company, so says Refrigograms, recently offered twenty-four Kansas Citians a free six months trial of the gas refrigerator, this offer being made in a paid advertisement in a local newspaper—twenty-five hundred customers made request the next day. It can be done—and it can be done in September as well as in May. Gas refrigeration sales will certainly show a tremendous increase this year. September is going to be a mighty good month to sell refrigeration due to the National Food Preservation Program which will bring to the attention of everyone in the country the necessity or at least the safety and advisability of keeping foods at a temperature of 50 degrees or lower.

Good Advice

Gas Company window display advertising is being given a great deal of study, and from what we can learn, it is rapidly becoming the most profitable form of advertising. Window display advertising, however, is a big subject. We feel that the Knickerbocker News for June puts the matter of effective window displays up to its readers in a most logical manner. Under the heading "Dress Your Windows" it has this to say: "A man might go forth clad in an immaculate dress suit, but if he had a soiled and messy looking shirt front the entire effect of his otherwise formal attire would be utterly lost."

A retail store may be immaculate in its appointments and fittings on the interior, but if it has unclean, unsightly, poorly trimmed windows, the entire effect is lost. The window of the store is the customers introduction to the sales counter. A window can be a wonderful aid if properly

dressed but it becomes an actual repellant to trade when it is unkempt. Knowing the value of the show window, some of the largest establishments in America spend almost unbelievable sums in providing attractive windows. The trims placed in their windows, day to day, are literally works of art.

In dressing your windows, consider first Attention Value, or attractiveness; second, Buying Appeal or sales appeal; third, Memory Value or will the goods displayed be remembered by the people who pass your windows—are there so many items of merchandise that no one can be favorably impressed by any single item?

Modern artistic treatment—"L'Art Moderne"—is not a fad. It is practical and useful in window trims. It adds buying values not alone because it has "Attention Value" but, because it reduces the number of items that may be displayed attractively, thereby adding "Memory Value."

Selling Out-of-Season

Here's an advertisement that was used by the Iowa-Nebraska Light and Power Company last winter to promote the sale of storage water heaters. This advertisement is evidence that there are merchandise men in the industry who know no seasons. This is as it should be. Too many folks are afflicted with an obsession that folks only buy when bitten with the seasonal bug and it's a pleasure to present evidence that the thought is outwearing its usefulness in the gas industry. Who is going to break a radiant heater record in August and a refrigerator record in December. Don't write, telegraph the boss the results.

AUTOHOT
A Gift That Spreads
Christmas Cheer
Year After Year
Each faucet's turn with its ready supply of hot water recalls the giver.
The Christmas spirit of remembrance will live bright and fresh, for many a year when the Autohot Automatic Water Heater is the gift. Each smooth, quick shave, each shortened hour of dishwashing, laundering, mopping and cleaning renews the Christmas thought of service. Automatic, it needs no attention. Strong and rugged, it lasts many years and we absolutely guarantee your satisfaction.
In Your Home, Too
Pay Only $5.00 a Month
Installation as Made Before Christmas If Order Placed at Once.
94.50 Installed Complete
Iowa-Nebraska
Light and Power Company
"You Can Buy Only Good Appliances Here"

How to Sell Incinerators

Speaking of a special that sells reminds us of a special effort the Consolidated Gas Company, the Northern Union Gas & Electric Company and the Central Union Gas Company, New York staged to sell incinerators. This campaign or sale was advertised in the daily newspapers and by the use of direct mail pieces. The direct mail pieces were in the form of a double fold processed letter with a customer's request card which enabled the customer to request a 30 Day Free Trial or complete details regarding the trial, while the newspaper advertisements were of the usual consolidated informative type that leaves no room for doubt in the home manager's mind that she has use for the appliance advertised. A copy on one of these advertisements is reproduced herewith; read it and you'll say it's full of selling copy.

Let's Talk Frankly—
about
this important subject of
GARBAGE
"Not knowing" the only safe and sure way of keeping the kitchen, basement, and premises free from table waste and refuse has brought disease, fire and uncleanliness to many a home, otherwise equipped with all the latest conveniences.
Even under the best conditions of city garbage collection, standing waste and rubbish is a fire hazard and a breeding place for flies. Under less efficient circumstances, it results in littered lawns and streets, and, in the home, a constant odor of decaying foods.
Gutter pups and alley cats are the only ones who would like the way many people still dispose of garbage today.
Burn it the clean way
Fire, the great purifying agent, destroys all refuse in a Gas Incinerator in a few minutes, under controlled conditions. Humidifying and smoke consuming devices keep all odors and by-products from leaving the container. All that remains is a small quantity of sterilized white ash that makes a wonderful tonic and fertilizer for your flowers, shrubs or lawns.
Anybody — man, woman or child — can operate a Gas Incinerator. It is safe, automatic, convenient, and as easy to install as a kitchen range or refrigerator. Nothing to tear out or build. The Gas Incinerator makes possible a clean and orderly basement — another room without remodeling!
Set an example of cleanliness
for your neighborhood
No matter how good a housekeeper you have been, you can improve the appearance of your home by twenty-five per cent. To give you an opportunity of proving it for yourself, we will Install a Gas Incinerator in Your Basement on 30-days' free trial. Mail the coupon today. It entitles you to free information and all details courteously given without any obligation whatever.
Household incineration by Gas is designed for people who take pride in the cleanliness of . . their homes . .
We are indebted to the New Yorker for the following story of the young lady who went to spend a week with her newly acquired and beloved husband:
They occupied a Connecticut farm which a friend agreed to lend them for an hallowed an interlude. The plan worried no one except the mother of the bride, who suspected her daughter of gross ignorance in the matter of cooking and dusting. At the end of the week, the pair returned to town, apparently still on speaking terms with each other.
"Well, how did it go?" the mother asked her daughter when they were alone.
"Swell," said the young lady. "I got along all right with everything except the garbage. There was no garbage man, and I didn't know what to do with it."
"Well," said her mother, eyeing her sharply, "what did you do with it?"
"Tied it up and brought it back to town," replied the proud child.
NORTHERN UNION GAS COMPANY
P. R. BARNITZ, President
510 EAST KINGSBRIDGE ROAD
Near East Fordham Road ~ Tel Raymond 5000
CENTRAL UNION GAS COMPANY
P. R. BARNITZ, President
525 COURTLANDT AVENUE
Corner East 148th St. ~ Tel. Mott Haven 1100
BRONX GAS & ELECTRIC COMPANY
EUGENE H. ROSENQUEST, President
45 WESTCHESTER SQUARE WESTCHESTER 9400
MAIL THIS COUPON
Gentlemen:
Please send me further details about the Gas Incinerator, and particularly your offer of 30 Days' Free Trial Installation. This request is, of course, without any obligation to me.
Name.....
Address.....
City.....

Standardization

It seems that the simplest way to be of asistance to the average gas company advertising man is to furnish him a ready-made proof sheet showing the various appliances he has to write copy around. Admen enjoy playing around with layouts until in their manoeuvers they hit upon an idea that suits their fancy. One advertising man, P. W. Hopkins, has produced such a bunch of proofs and bound them in booklet form. If you're interested write him, care Roper ot Rockford, Illinois.

P. S.—We think you'll like this book for another reason that you will not have to build an addition on to your desk or file case drawer to hold it. We wonder why the Committee of Standards, or is there one, don't standardize plan, advertising and dealer help books?

Angel Food

Robert M. Angell, Display Supervisor, New York Power and Light Corporation, Albany, N. Y., produces some of the most

striking window display advertisements you would want to see. They are colorful modern and to the point; they mess no words and get the idea over with a bang. Witness the one reproduced here.

Does it not make you dread to think of cold weather's approach; does it not cause you to resolve to put-off firing the furnace until the very last minute? Does it not cause you to wish to investigate the possibilities of heating that cold room with a healthful radiant gas fire? It appears to us that it does and that's the kind of appeal all of window display advertisements produced by Mr. Angell seem to have. Another thing about Mr. Angell's displays that appeals to a small town boy is that each and everyone of them deliver a quick understandable message—he endeavors to "sell the Sweeneys."

Window Trim Materials

Novelty and decorative beauty in window display advertising is being secured through the use of some unusual materials these days. Colored metal foils, velour paper, and Cel-O-Glas are some of the materials now being employed; the Cel-O-Glas for lighting effects, the velour paper for backgrounds, and the metal foil for backgrounds and covers for modernistic pedestals and stands. One artist has used the colored velour papers as backgrounds for pastel paintings in line, and for a stippled effect which he secured by brushing water colors on the paper. The Cel-O-Glas which comes in twelve transparent and five opaque colors has been used to work out some very stunning color effects in connection with window display advertising.

Gas Refrigeration Tip

Gas refrigeration, as we view it, is a mighty fine load to add to the domestic meter and if the job of introducing it is properly undertaken it will prove a most profitable one from a merchandising standpoint. September is the time to start your selling program. During that month the gas and other industries will participate in a National Food Preservation Program. This program will be widely advertised in the modern manner and it behooves all gas men who wish to tie-in to the movement to get in touch with the nearest regional director or the National Council headquarters at once. One of the outstanding features of the program is the National Idea Contest in which 833 cash awards will be made in an essay contest.

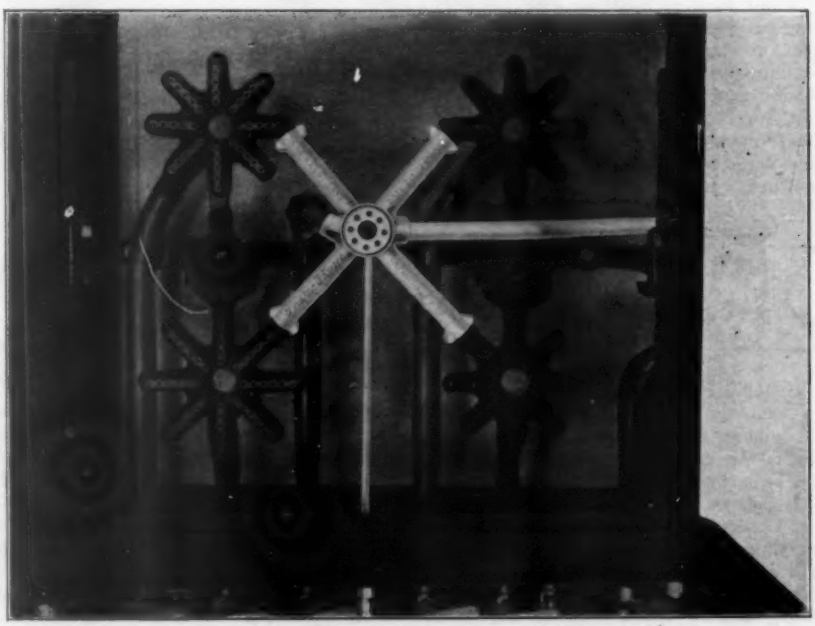
A Growing Practice

The other day we heard a retailer complaining about sales. Two days later we had occasion to visit his store which is a specialty shop. We entered, walked the length of two show cases and discovered a sales lady at ease. And she stayed that way, for at least six minutes and when she finished the line, which we imagine read, "to be continued," she shot at us, "something for you?"

Nuf said!

A Clever Device

We have said so much from time to time about the value of new appliances and innovations as a means for increasing the sale of gas per domestic meter that whenever we see something worth while we try to secure a photo of it to pass on to our readers. We have just received one that fills a big need and truly makes the gas range a carefree cooking appliance. This device enables the home manager to light any burner on the main top as well as those in the oven and broiler without the aid of a match or without even pushing a button—just turn on the gas, that's all there is to it. It's a Roper product called "Insta-Flame." We say it's a feature that will speed up range sales. And, oh boy, how the advertising gas man will play it up.



Double-barrel Work

We have all heard of how certain selling organizations are everlastingly breaking sales records. One of them uses the so-called "two-time call system" whereby on the first call the representative presents the housewife with a card that entitles her to a premium of some sort if presented to him on his return call. The premium of course is tucked away in a kit that contains other merchandise that the representative has to expose and talk about at the time of his second visit and the result is that he usually secures an order.

Now comes a sales manager in the gas appliance field who "two-times" his prospects. This man instead of sending his men out singly, when he is staging a drive on some special appliance, sends them out in pairs; one man to make the approach and arouse the customer's interest and the other man to close the sale. It occurs to us that this might be a good way to sell all the appliances as gas refrigerators, laundry dryers, incinerators and house heating furnaces and boilers. It is certainly worth trying. The insurance companies use a system of this sort and according to recent statistics they are doing a real selling job. That's what we have to do to put over these less familiar household appliances, at least until such a time when we acquaint the home manager with their use and the fact that she has need for them in her home.

Know Your Stuff

Right now we imagine that every gas merchandiser in the country is perfecting plans to stage some sort of Home Service activity this Fall. Cooking schools store demonstrations, club luncheons or what not, we hear, are very popular with the home manager and are one of the simplest ways to meet the thing referred to as "new competition".

In talking to a Southern gas man not so long ago regarding ways and means of building up the home cooking load he said: "We plan to have our Home Service Department so well trained by early Fall that we will be in a position to send our experts out to any kind of women's meeting with material in their kits that will be of interest to any and all of them. We of course are going to have our young women whose duty it will be to follow-up range installations, and conduct cooking schools. But, aside from that, we are going to have our workers so well informed that they may help the home manager with any and all of her problems. Cooking schools are mighty fine things, for mass selling, and we are going to conduct them. Yet, as we see it, we feel that our Home Service work may be used to greater profit by centering our efforts on individuals and small groups. After all is said and done our problem is to interest more women in home economics, and we are not going to be satisfied until we have reached them all somehow. It is for that reason that we are making sure that our workers understand gas appliances and know how to use them before we send them out this coming Fall and Winter."

This Should Go Over Big

A midland gas company, always on the alert to build up the send-out per domestic meter, is planning to stage a store sale of gas-heated corn poppers during the month of September. This company will advertise a well made corn popper at a

A SEPTEMBER LOAD BUILDER
FUN FOR THE FAMILY
CORN POPPING TIME IS HERE!
$1.50 E-Z Corn Popper 98c
Famous E-Z Corn Popper for household use that takes the hard work out of Corn Popping. - So simple a child can operate it.
Will pop corn with or without butter and is easy to keep clean. Uses less heat and will not burn the corn. It is well made and will last a lifetime.
"The popper that puts the pop in pop corn"
Present this coupon and get this $1.50 utensil for 98c
UNION POWER & HEAT COMPANY

reduced price; "Cash and carry" will be the magnet. Gas bill flyers will advertise the "special" and the Home Service Department will demonstrate a number of popped corn recipes in the store on discount days.

Always in Order

"Waffles are good at all times;" so read the headlines of an advertisement in one of the metropolitan dailies a day or so ago, and that seems to be correct, because somebody eats waffles most all of the time. But it does seem that as the cool weather approaches everybody has a craving for hot waffles at least once a week. Waffle irons help swell the domestic load and September is a good time to start to sell them. Have the Home Service Department work up a batch of new recipes and send them out with your September bills with a P.S. "Waffles are best when baked on the —— gas waffle iron, now on sale at $1.95."

A Chance for Ingenuity

Some gas man will do the smart thing one of these days and invent a half dozen small appliances for use on the main top of the gas range. One of the first should be a bang-up percolator; one that will perc quickly and be so constructed that it will keep coffee piping hot for a couple of hours or more after it has been removed from the range. He who invents this percolator will also make it so blamed good looking that the home manager will want it setting on the serving table when it is not in use on the table.

It's these little, good looking appliances with special features that are going to preserve the old time tradition, "like mother used to make," and, most certainly, build up the domestic sales of gas per meter.

Two-for-One Sale

A load building sale, staged sometime ago by an Illinois gas company, that helped to build up gas sales per domestic meter featured a two burner home laundry stove delivered and connected and a standard copper wash boiler for $12.50. This sale which was of short duration offered the customer this bargain on a payment plan: "50c down with order and the balance at the rate of 25c per week." Folders and gas bill flyers were used to advertise this sale—and we understand that it went over BIG. This looks like a worth while idea for use in connection with a September store sale.

Good Scotch

There's a gas man out west who uses his newspaper advertisements as window cards. Whenever he advertises any special in the newspapers he sees to it that the merchandise is displayed in his win-

dows and along with it a copy of the newspaper advertisement, mounted on a clean white card and set into a hand painted border.

JUST 2 STEPS

1 - A MODERN *All Gas* Home for every *Gas Man*

2 - A MODERN *All Gas* Home for every *Gas Customer*

An *All Gas* Home for Every *Gas Man*

THE confidence of every customer is the prize that every gas man should aim to win and keep. This confidence should merit most intimate consideration.

In the advancement of the ideal of "An All Gas Home for Every Gas Customer" we are brought face to face with this great essential—Confidence.

How many Gas Men can with confidence ask their customers to equip their homes with gas burning appliances without being overwhelmed with the responsibility of doing likewise?

Does this not vividly bring up the question and hence the necessity of *An All Gas Home for Every Gas Man?*

Confidence in Business is one great essential to success and we believe unalterably in the old teaching "Do not ask another to do what you would not do yourself." This is as true today as ever and as sound a principle in business as it is in morals.

AMERICAN GAS JOURNAL

Batten, Barton, Durstine & Osborn
INCORPORATED
383 Madison Avenue, New York
ADVERTISING

July 22nd, 1929

American Gas Journal
53 Park Place
New York City,

Attention: Mr. J. M. Connor

Gentlemen:

As advertising agents for Electrolux, the gas refrigerator and the Carrier Weathermaker, we are keenly interested in the campaign which you have started to promote "An all gas home for every gas man". The gas industry has suffered severely by reason of the fact that the invention and development of household appliances has tended to be along the lines of electric uses instead of gas uses. This has brought about a condition where the modern thing seems to be to shift from gas appliances to electric appliances. Electric lighting made gas lighting old fashioned. Electric percolators and toasters have diverted some of the cooking load from gas to electricity.

When Electrolux was put on the market the gas industry was quick to see that it was an appliance which, because of its superiority to any electric refrigerator, would make it fashionable and popular to shift from electric refrigeration to gas refrigeration. It is for this reason, probably as much as because of merchandising profits and increased gas load that the gas industry has so unanimously put itself behind gas refrigeration.

You have hit on a very logical keynote for the gas industry when you suggest "An all gas home for every gas customer". With the modern gas refrigerator, modern gas heating appliances, and modern gas cooking appliance, every loyal gas man should use gas for these purposes.

It seems to us that the American Gas Association might well adopt the slogan you suggest as the keynote for an association effort. You are to be congratulated on your perception of this thought as a vital and logical one for the gas industry.

Cordially yours,

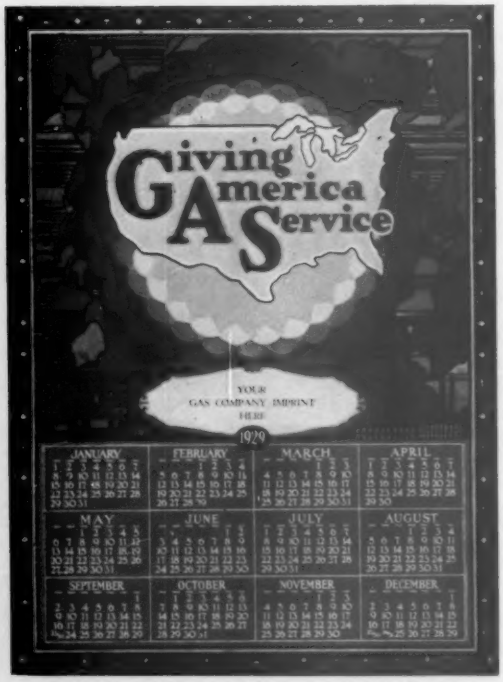
BATTEN BARTON DURSTINE & OSBORN, INC.

Egbert White

Egbert White/MC

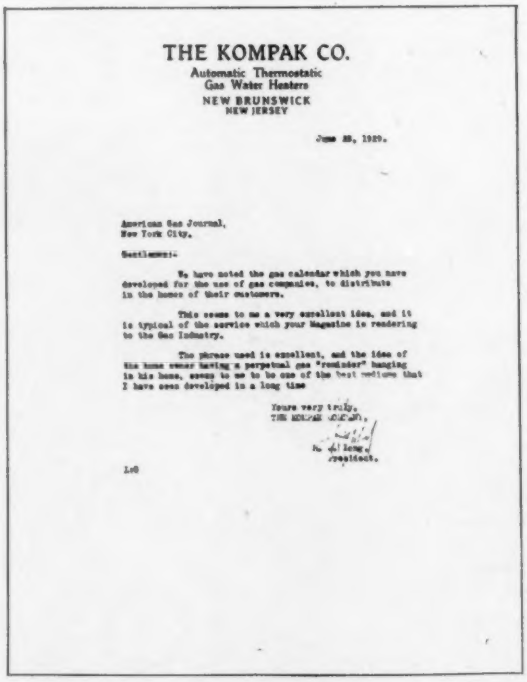
More Appliance Sales

A Great Means to—A Great End



The American Gas Journal is publishing this calendar to further the interests of the gas industry, of which for 70 years it has been a part. They are sold in lots from 500 to 50,000 or more, at a price so low that they are within the reach of every gas company in the country.

To really appreciate what a splendid appliance sales stimulator the calendar can be to the largest and smallest gas company you must see the attractive original.



THE KOMPAK CO.
Automatic Thermostatic
Gas Water Heaters
NEW BRUNSWICK
NEW JERSEY

June 28, 1929.

American Gas Journal,
New York City.

Gentlemen:

We have noted the gas calendar which you have developed for the use of gas companies, to distribute in the homes of their customers.

This seems to me a very excellent idea, and it is typical of the service which your Magazine is rendering to the Gas Industry.

The phrase used is excellent, and the idea of the home owner having a perpetual gas "reminder" hanging in his home, seems to me to be one of the best methods that I have seen developed in a long time.

Yours very truly,
THE KOMPAK CO.,
R. A. Long,
President.

LaG

The above reproduction in miniature of a letter from the Kompak Co., illustrates the enthusiasm with which the "First All Gas Calendar" has been received by the Gas Industry. It is also an appreciation of one of the many services we are rendering the industry.

This beautiful reminder of the multitudinous uses of gas in homes of every gas consumer, keeps ever before them the fact that "Gas" is "Giving America Service"; that their gas company is always willing to contribute to their comfort and convenience by bringing to their attention each month the various appliances through which this comfort and convenience can be achieved and which can be purchased at the company's store.

Sign and Mail coupon today.

AMERICAN GAS JOURNAL
53 Park Place, New York

Send further information regarding "Giving America Service" Art Calendar, for 1930.

Company .....

City .....

State .....

Position .....

and now.. you can do it better with
GAS
for Refrigeration
1929 JUNE 1929
SUN MON TUE WED THU FRI SAT
1 2
3 4 5 6 7 8 9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
31

Enthusiasm—Thou Art a Jewel

By O. B. Server

WHAT a salesman needs is enthusiasm. Everyone in the Gas Industry is more or less of a salesman, from the president down to the office boy.

If the entire organization is really enthusiastic about its product it will impress the public and create a favorable attitude towards Gas.

If, on the other hand, any of the higher-ups are more or less in doubt as to the future of Gas, that will permeate all through the rank and file and is bound to affect the public, who quickly sense a lack of conviction.

It is therefore interesting to get a note of encouragement along this line from a talk made recently at a meeting of the Northwest Division of the Pacific Coast Gas Association at the Empress Hotel, Victoria, B. C., where John H. Hartog had for his subject, "Enthusiasm, Thou Art A Jewel," and spoke as follows:

"When I was asked to deliver a speech on 'The Future of Gas in the Northwest' or choose my own subject, I answered that I would rather not assume the task of composing a speech around a certain subject, but would prefer to confine myself to a few remarks on a subject that I was full of,—namely, the new enthusiasm we feel for the future of Gas.

"'Enthusiasm, thou are a jewel!' But after all, are not the two titles fundamentally synonymous? For what other foundation can the future Gas industry be built on than of enthusiasm? With us, in Portland, enthusiasm is at white heat, so why worry about the future of the industry?

"Time was when we walked, as it were, through the valley of the shadow of death, sore beset on all sides by aggressive antagonists, overhead by threatening clouds, and slippery mire below foot. True, we talked big and whistled to keep up our courage, but deny it as we might, our whistling was not for joy, but rather to make others think that we were not afraid. We fooled no one and the enemy made inroads everywhere.

* * *

"And what of the salt, when it loses its savor? Wherewith shall it be salted? What of a discouraged leader of a hackled salesforce?

"A candle, lighted and placed on its candlestick, casts its light into the corners of the room, but here we were, hiding our light under a bushel, blinded by the glare of the competitors' torches.

"And then came the change.

"1929 will be an outstanding year for our industry, for it has seen the growing tendencies take on active form and the notes of encouragement of recent years, one here, one there—faint and far apart, have swelled into a chorus which could distinctly be heard this year.

* * *

"What was the keynote in this welcome music? It was the advent of Gas Refrigeration. Slowly, painfully these notes of new courage and pride became audible, till finally they grew so distinct that all heard them and tuned their lives accordingly. Gas refrigeration lent clamor to meet clamor. Gave courage, to meet conceit. Gave novelty to belie the charge and tacit admission of being obsolete. Gave romance to what had been commonplace.

"In short, it gave rejuvenation! Aye, it was as it were a resurrection from the grave. It took the dry and dusty bones, put flesh and sinews upon them and breathing upon them, the bones became alive, an exceeding and great army. The Gas man beheld and took courage. He saw the light and courage grew into enthusiasm. And if he were alive to his new advantages he would heed the command given the great prophet: 'Cry aloud, spare not, lift up thy voice like a trumpet and show thy people their possibilities' if I may paraphrase this beautiful text.

A Pretentious Plan

"Out in Portland, Oregon, we staged in February the most pretentious entertainment ever conceived of, out our way. Thousands upon thousands of the most desirable prospects gathered every afternoon and evening for one entire week under our own roof. This affair, the talk of Portland, the greatest success ever achieved in the line, coupled with aggressive, fearless attack on all the opponents of Gas, placed Gas once more upon its pedestal, put it on the throne so firmly that at this very moment, four months later, the enthusiasm is still evident to even the most casual visitor.

"Besides the high-grade talent conducting the affair, besides the intricate organization, into the minutest detail, which had been worked out and rehearsed for weeks in advance, there was the beautiful stage-setting of modern Gas ranges and Gas refrigerators, which created an atmosphere of beauty that was irresistible to women.

"Some years ago the househeating developments gave Gas a new place in the sun. Then came the Vulcan people with their new solid-top Gasrange, the savior of the Gas cooking-load in localities of sharp electric competition, such as we 'enjoy.' Then came Gas refrigeration with its actual superiority over other methods and now the Radiantfire steps into the spotlight as a real blessing to mankind from a health standpoint.

* * *

"Indeed, 1929 will be known as a turning of the road and with head held high, we fear no more, but rejoice in competition, for we are no longer on the *de*fense, but have taken the *of*fensive and see the enemy in consternation. To say this boastfully is sheer folly—to feel it sincerely is the basis of success, the very breath of our existence. To paraphrase that well-known expression of Lord Ashburton: Courage is something, but enthusiasm is everything. Courage is serious, sober, grave and respectable. Enthusiasm is all that and more too.

"It is the open eye—the quick ear—the judging taste—the keen smell—and the lively touch. It is not a sixth sense, but it is the life of all the five. It is the interpreter of all riddles—the surmounter of all difficulties—and the remover of all obstacles.

"Enthusiasm—Thou Art a Jewel!"

Enthusiastic Delegates to Victoria, B. C., Meeting, Pacific Gas Assn.

Six room Colonial Cottage. Blue Star Home Number One, exhibited by the Fall River Gas Works Company. This home was insulated, fully equipped for gas service, and furnished completely in antiques and antique reproductions

Do Blue Star Home Exhibits Pay?

By M. Harlow North
Advertising Manager, Fall River Gas Works Company

IF measured by the standard of direct sales made and the number of "hot" prospects secured during the exhibit, the answer perhaps will be "no." But measured by the standard of ultimate sales that will be made by bringing home to a great number of people in the most effective way the story of complete gas service in the home and the part that each individual appliance plays in making the home more convenient, comfortable, and livable, the answer is emphatically "yes."

The Blue Star Home exhibit is a form, and a very effective one, of educational advertising. As such, too much in immediate results should not be expected from it any more than from any other form of educational advertising. The Blue Star Home exhibit serves as a background or a foundation for increasing the effectiveness of subsequent direct appliance advertising and sales effort.

The Fall River, Mass., Gas Works Company has participated in a number of Home Beautiful exhibits in the past few years. Since the inception of the Blue Star plan, these exhibits have become annual events. Each exhibit has taught valuable lessons in making succeeding ones more effective.

Originally we exhibited our appliances in homes which had been built by speculative contractors. In many cases these homes were of inferior construction. Frequently, they were inconveniently arranged and equipped so that makeshifts were necessary when installing gas appliances. The results when the homes were exhibited were very far from ideal.

With the coming of the Blue Star plan, however, we started our exhibition plans before the homes were built. Through special arrangements with a local contractor who has a large land development within the limits of the city we were able to some extent to select a site and to design and plan Blue Star Homes for exhibition purposes.

From our experience in the past we have established certain principles in conducting these Blue Star home exhibits to secure the maximum benefits, not from the narrow standpoint of how many immediate sales we can make, but from the broader aspect of the results to be secured this year, next, and the years to follow.

Briefly these principles are: (1) To exhibit homes that will appeal to the greatest number of our customers. (2) To make the exhibition homes so perfect in every detail that they will make a lasting impression. (3) To minimize the selling effort in the exhibition homes and concentrate rather upon getting over the idea of the comfort and convenience of the gas home.

To appeal to the largest number of our customers, we have planned our exhibits so as to give examples of homes that the average family in our community might accept as its ideal. The Blue Star Homes have been neither too large and palatial, nor too modest. Therefore, they have not been beyond the dreams of the poorest customer nor beneath the interest of the more well-to-do customer. For example, the two homes in the exhibit conducted recently by the Fall River Gas Works Company were built to sell for $6600 and $7500 respectively. In other words, by aiming our efforts at the well known Mr. and Mrs. Average Customer we have reached a wide cross section of all our customers.

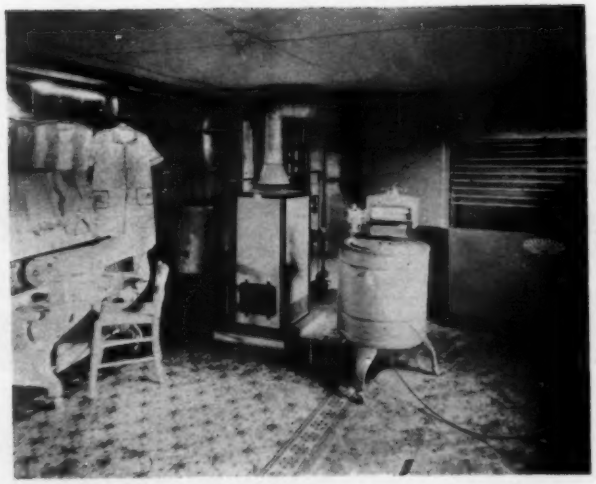
The second principle upon which our Blue Star Home exhibits are conducted involves careful thought and thorough planning for months in advance of the exhibit. It starts with a selection of the site. The exhibition home must be in an attractive setting and must be easily accessible by trolley and automobile. Then come the plans for the house itself, every detail of which is carefully worked out, not only to include the ultimate in the way of gas equipment but also in convenient arrangement, modern lighting, advanced sanitary equipment, and those other conveniences that ordinarily are available only to those who can afford to pay an architect for meeting their individual requirements.

It is natural, of course, that every modern and efficient home should be gas heated, should have an insulated gas range, modern water heating, laundry equipment, incineration, and fireplaces equipped with the best types of radiant heaters. But it is also essential that the kitchen be laid out in such a manner that the housewife's steps be minimized, that the other rooms be large enough and so arranged that when they are finished they will not be cluttered up or crowded. The furnishing and decorating should be turned over to the most competent interior decorator available.

The result of such detailed planning and careful follow through will be a home that visitors will exclaim over. It will be a model home in fact as well as in name, and those who visit it will be quick to appreciate its convenience and attractiveness. One has only to listen to the visitors' comments to be assured of that fact. The impression of complete comfort and convenience and beauty of gas equipped homes that is carried away by the visitors is a long lasting one.

In the exhibition of such a home as this it is natural that the hostess in at-

Kitchen in Home Number One. A buff color was used on the range as well as on the sink, radiator, woodwork and cabinet. A gas refrigerator was also installed in the kitchen.



Part of basement in Home Number One showing the home laundry equipment. In the background are the gas incinerator, water heater and gas-fired boiler

tendance and gas company sales people will make some immediate sales and secure some prospects who will be sold in the near future. However, too much stress upon sales, or any indication of high pressure will put the visitors in a defensive frame of mind which will obscure the complete picture that we wish to present. We have found that too much selling hurts attendance, and we attribute our record attendance of 20,000 at our last exhibit partly to the fact that in this, as in former exhibits, no one has been frightened away by too insistent selling.

People who show a definite interest in any one appliance and are willing to give their names are followed up by the sales people, but the purpose of the Blue Star Home exhibit is above and beyond this.

If we are able to plant a seed in the minds of those who attend which will grow into the desire for the better service that gas will give them, and finally blossom into sales, not necessarily now, but in the future, we feel that we have accomplished our purpose.

The living room of Home Number One showing the delightful effect achieved by the decorators through the use of antique furnishings. Note how well the period model gas fireplace heater fits into the decorative scheme

Perhaps it would be of interest here to give some of the details of our last exhibit which was held in Fall River in the latter part of June and consisted of two Blue Star Homes, designated as No. 1 and No. 2 of an exhibit of five homes sponsored by a local newspaper. These homes were both Colonial Cottages, a very popular style of architecture in New England, and were planned and built especially for exhibition purposes. Before construction was started, plans were approved by the Fall River Gas Works Company which specified sizes and locations for gas piping, outlets, and flues. House insulation was also specified.

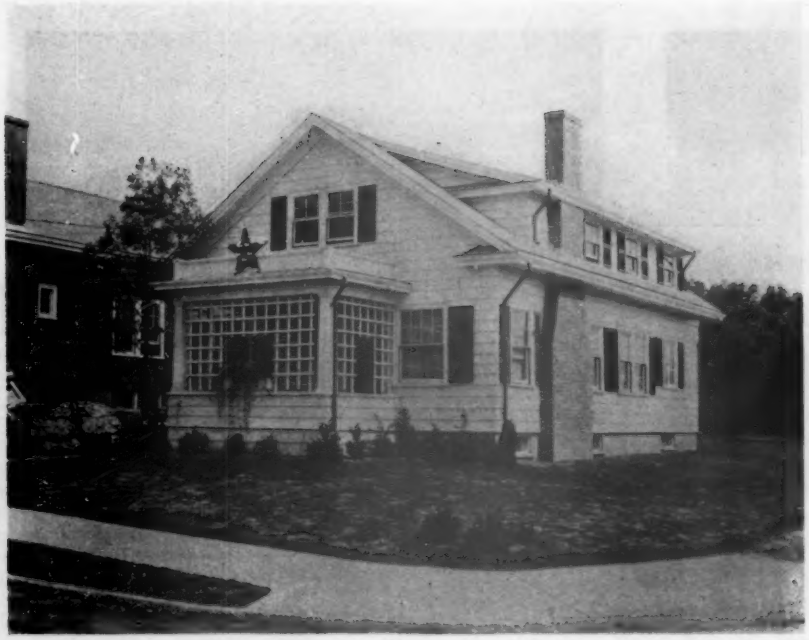
In addition to adequate flues, piping, outlet, and house insulation, Blue Star specifications in Fall River include the following minimum appliance requirements: gas range, gas house heater, and automatic gas water heater. In the Blue Star Homes exhibited, however, were also gas refrigerators, incinerators, fireplace heaters, and model laundries equipped with gas ironer, gas dryer, and washer. Home No. 1 was equipped with a gas-fired boiler, while in the other a conversion burner was installed.

To set off to best advantage the convenient construction and equipment of the Blue Star Homes a great deal of attention was given to decorating and furnishing. Blue Star Home number one was completely decorated and furnished in antiques and antique reproductions by a well known local interior decorator whose results elicited much favorable comment from thousands who visited the homes. Equally attractive was Blue Star Home number two which was decorated and furnished in modern style by a large Fall River department store.

The kitchens of both homes were furnished in color with gas range, refrigerator, sink, and other equipment in harmony.

Perhaps the greatest interest was shown in the basements which were painted and finished as attractively as the rest of the homes. Much of the space was devoted in each basement to a children's playroom completely equipped with toys. The rest of the basement in each home was partitioned off and equipped as a model home laundry.

An extensive newspaper advertising campaign was run cooperatively by the gas company and the builders. This advertising was designed to accomplish two things; first, to get across to the public the significance of the Blue Star, and second, to get people out to the homes. Nearly every advertisement contained complete directions for going to the homes by automobile or by trolley. Signs were placed at strategic points on nearby main thoroughfares directing people to the Blue Star Homes, each of which was marked by an illuminated Blue Star which could be seen for several blocks.



Fall River Blue Star Home Number Two

Practically every visitor who went through one home also visited the other, for the two Blue Star Homes were diagonally opposite each other on the same street intersection. The total attendance for the eight days of the exhibit was about 20,000.

As the visitors entered the homes, they were greeted by hostesses who conducted them through and explained the various gas appliances and other equipment. In both homes radio music was furnished during visiting hours. In the laundry of one home ironing demonstrations were conducted every day. Descriptive literature on the gas appliances exhibited was kept on hand for distribution to those who showed interest, and the hostesses and other representatives in attendance succeeded in securing a very good list of prospects.

The number of people who have called upon us for details of Blue Star specifications, and the number of appliance sales traceable directly to one of our Blue Star Home exhibits, often months and sometimes years after the exhibit, assure us that we are pursuing the proper course in educating our customers toward a higher standard of living through complete gas service—that our Blue Star Home exhibits pay, and pay well.

Essentials in Control of Gas Company Salesmen

By a New Business Manager

I HAD been out of college five years before it came to me, hard, just why text book knowledge is so often inadequate before the problems of real life. Text books do not give us a sense of proportion.

Applied to gas new business promotion, the text book science of selling has to undergo a tremendous amount of modification. Through experience we acquire the ingenious sense of proportions.

A principle in gas company selling which I have before me every hour in the day is that salesmen are human beings, and very human. Selling is a gruelling, hard occupation, and no man's soul is eternally damned if he slips now and then. Salesmen who, under one variety of sales management, may go to pieces before opportunities to cheat the job, may, given the right kind of management, rise to great heights of sales accomplishments.

One of the essentials in managing gas company salesmen is to realize how human they are. If it is easy to bluff the job, resorting to little tricks and deceptions, pulling the wool over the eyes of his business manager, the salesman is all too likely to do it. On the other hand, if the new business manager is strong, keen, unrelenting, in his demand for superior performance, the salesman again takes the easier course, which is to work on the public.

I know I am fairly successful in eliminating the petty tricks from the conduct of my men. Selling them on the importance of sales literature, I tell them that some of the manufacturers now require payment for it. I explain my system—a certain amount of sales literature given to each salesman each day. I let my men know, frankly, that I have been through the mill myself, and know all the ways that salesmen have with sales literature. This literature of ours is going to be placed where it belongs. I let the men know, also, that they are going to be checked up from time to time.

Make it hard for your salesmen to cut corners. You are actually helping them in doing this. You are building for sales.

Keep your men upset. Show me a bunch of self-satisfied, tranquil, salesmen, and I'll show you a bunch that will produce only ordinary results. One of my rules is not to praise the salesman when he is doing splendid things. You may feel like doing this—I do. I know from experience, however, that this is the wrong psychological chemical to add to the mixture at the moment.

Use praise in your scheme of things, of course, but hold it in reserve for the time when the star boy has a slump. He always has it. Then talk of his past record, praise him for it. Tell him he has done it once—he can do it again.

Importance of Evening Work

No amount of "super-salesmanship" will make up for failure to put in full time on the job. We must keep our salesmen working all the time.

Evening work is very essential. My objective is a bunch of salesmen who take evening selling as a matter of course, and resort to it in every situation where it is desirable. When the sale involved runs into money, the housewife must talk with her husband. Make an appointment for the evening, and sell the two together.

Have a compensation system that is handled right. I have worked with both straight salary and drawing account and commission with exceptional results in both cases. The men on salary were picked and proven producers, and their salaries were high—near the top—for the gas field.

I have always found it best to be absolutely frank with my men. Whatever they receive from the company, they must earn. If, on a salary basis, a man is falling down, I don't hesitate to tell him the deal is unprofitable for the company and will have to be terminated—unless he changes the complexion of affairs.

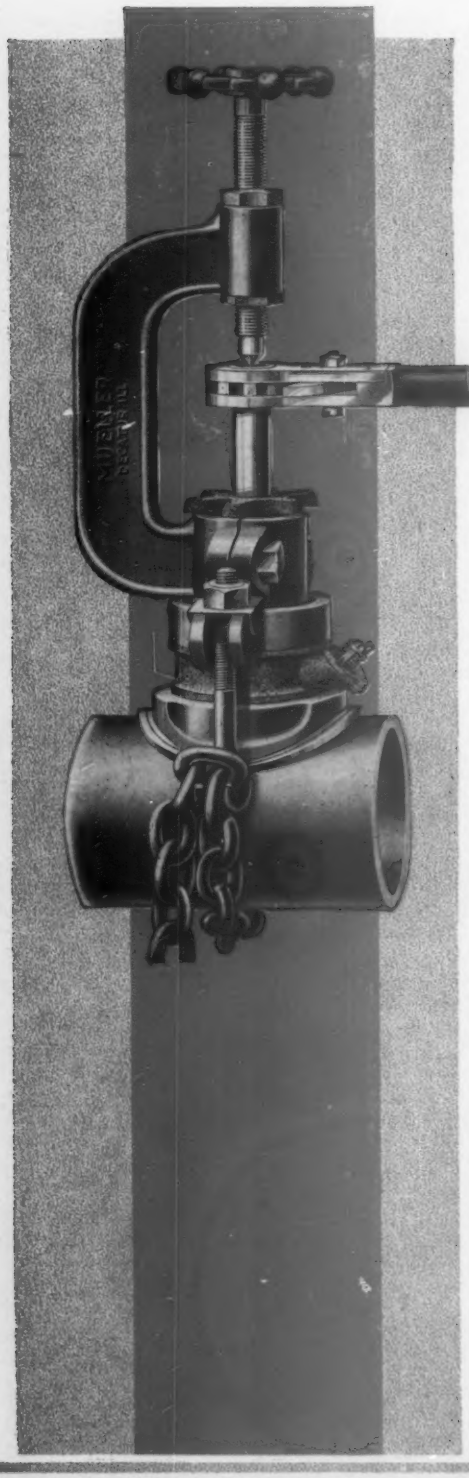
I have never hesitated to follow the same course with a commission schedule. The average salesman will study the schedule for the easiest way to make money. We find that, no matter how carefully the management has worked it out, there are points of least resistance in it. That is, the salesman can make

(*Continued on page 67*)

★COPPER

thousands of years old: taken from King Tut's tomb was as good as new

★ WATER CAN'T RUST COPPER, CAN'T CORRODE IT *and* CAN'T HURT YOUR KOMPAK COPPER BOILER



Quick, gas-tight jobs with *Mueller* Type "L" Tapping Machines

Give your men Mueller Type "L" Tapping Machines for quick, gas-tight jobs from 3/8" to 2" on mains under pressure.

The time-saving features of these machines make tapping jobs easy for your men. Work is speeded up and labor costs are lowered.

The rigidity with which they can be set and their precision in operation insure accurate work that saves gas and trouble.

Mueller quality in tapping machines is an investment. It means many years of the rough handling that workmen give "company" tools.

Write for full description and prices on Mueller service-giving tools.

Mueller Co. (Established 1857), Decatur, Illinois; *Branches:* New York, Dallas, San Francisco, Los Angeles; *Canadian Factory:* Mueller, Limited, Sarnia.

MUELLER

Write for the complete catalog of Mueller gas service goods

Gas analysis Laboratory with Apparatus for Determination of Carbon Monoxide and the Making of Complete Gas Tests

Chemical Laboratory for the Solution of Chemical Problems Relating to Materials and Processes

The Research Laboratory of American Stove Company

Looking Ahead

SINCE American Stove Company's announcement of the invention of the Lorain (Red Wheel) Oven Heat Regulator more than ten years ago, not a day has passed that has not seen some effort made by this Company to discover or invent additional improvements of equal or greater merit.

To make certain that the search would result in the development of definite improvements of outstanding merit American Stove Company, for a number of years, has maintained at St. Louis, Mo., a Research Laboratory that is second to none in the entire gas industry—and as fine as any laboratory of its kind in the world.

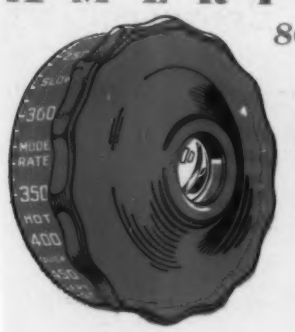
In this Laboratory have been brought together the best of modern scientific equipment and the highest type of personnel available. It is, therefore, reasonable to assume that when additional outstanding improvements in gas range construction and design are found they will be discovered within American Stove Company's own organization.

For, no other gas range manufacturer has so consistently or so generously given of his time, money and effort to add to the sum of human knowledge concerning gas-cooking appliances and the use of gas for cooking.

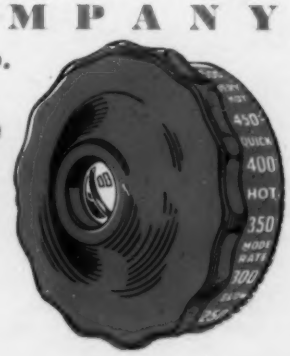
AMERICAN STOVE COMPANY

801 Chouteau Avenue • • • • St. Louis, Mo.

LARGEST MAKERS OF GAS RANGES IN THE WORLD



LORAIN RED WHEEL



These are the Six Famous Brands of Red Wheel Gas Ranges:

DANGLER • CLARK JEWEL • QUICK MEAL
DIRECT ACTION • NEW PROCESS • RELIABLE

A BIG INCINERATOR CAMPAIGN IN NEW JERSEY BY PUBLIC SERVICE

A 30 day Special Campaign on KERNIT INCINERATORS will be conducted during September by the Public Service Electric and Gas Company of New Jersey.

The services of 160 district and floor representatives, operating from the 25 Division Offices of this company, which supplies gas service to 720,000 meters throughout the State of New Jersey, will be employed during this unusual sales effort.

KERNIT TO BE SOLD EXCLUSIVELY

There are many good reasons why Public Service and other gas companies operating in the larger cities have selected KERNIT and are putting some intensive effort behind the sale of incinerators.

The old-school gas appliance merchandising methods are rapidly passing out of the picture.

INCREASED GAS LOAD NOW KEYNOTE

The gas-fired incinerator is one of the newer gas appliances which help to offset the declining tendency of domestic gas sales.

There are some unique features about the Public Service Incinerator Sales Plan, concerning which you will be interested.

Copy of the Plan Book will be sent to any gas company Sales Manager, on request.

Will Send Kernit for Inspection at Our Expense

3 & 4 bushel sizes

100 cubic feet per hour consumption.

Tested & approved by leading Gas Companies

The finest household incinerator made—

KERNIT
INCINERATOR CO.
AMPERE, N. J.

Give "Sonny" More Sunshine.

Going After Smoke

Every Gas Man can make a genuine contribution to the health of his community by emphasizing Gas as the Smokeless fuel to every Home Owner and Factory Executive.

Control of Gas Company Salesmen

(*Continued from page 62*)

money far faster by plugging certain items than he can on the rest of the field. Of course, he plugs those items.

The company wants load. The salesman wants commissions. Under a commission schedule which has been gotten up with the greatest of care, surprising things can happen. I know. I've seen them happen to me!

My policy is to go over the situation, and tell the salesman, frankly, that unless results are different the commission schedule will have to be radically altered, or dropped altogether. I appeal to them to give the company an even break.

Occasionally the "wizard"—the salesman who runs up unheard of commissions—makes his appearance. What shall be done about him? Advancement, plus substitution of a salary which is high for the work, plus security which comes with advancement, is probably the best recourse in most cases.

In every department, there should be one man who is virtually a super-salesman—a man who can go out on leads which other salesmen have given up on, and sell to these in 50% of the cases. A salesman of this type logically becomes sales supervisor.

In organization of a different sort, it evolves upon the new business manager to to be a super-salesman. If a sales department is to measure up to the results demanded of twentieth century selling, there absolutely must be in it a pacemaker, a man who can inspire and spur ordinary salesmen by the most effective of all methods—example.

Modern gas merchandising is a study in hard work and concentration. To get the results demanded, we must, my experience tells me, have regard for the essentials I have here put down.

The Window Display Value of a Photograph

By Ray Martin

Director of Display, Consolidated Gas Company of New York

CAN you see the devil in the background? He is there, and is tempting the youngster—and all who look—to eat the food that a gas refrigerator *keeps delicious*. However, the boy, a photographic enlargement, caught your attention first. Didn't he?

This life size photograph fulfills a double purpose. First, it adds absolute realism to a display that requires it. It "goes," as it were, with a refrigerator that is full of real food. Incidentally, this food is not real, but it is sufficiently realistic to defy even close inspection. Secondly, it attracts attention to a window by the age old method of causing one man to stop to see what another (the photograph) is looking at. In other words it stops the passerby.

If properly used, photographic cut outs can be depended upon to give a punch to most window display advertisements. Particularly when contrasted with figures conceived by a brush, their use makes a display live and breathe. But do not make the mistake of expecting a photographic enlargement to work for you unaided. It will not. It must have the support of an interesting background. Then, together, the photograph and background tell a story—the story that you want your customers to know.

Is the Gas Cooking Load Desirable to Utilities?

After all, is the cooking load really worth going after? What does it amount to now? We all realize, without quoting any more statistics, that domestic consumption is the largest portion of the total gas send-out. And that the cooking load is the backbone of the domestic demand. Therefore the need to conserve and increase the cooking load is perfectly obvious.

Someone has said that the gas range is the Good-Will Ambassador of the gas company. This is indeed very true, because, in the minds of most women, the gas range IS the gas company. All the housewife knows of the gas company is that when her gas range gives her good service day in and day out, it is a GOOD gas company; and when the service is poor or her baking unsuccessful, then the gas company is a BAD gas company,—and she cherishes a deep resentment.

About the best thing a gas company can do to create good will, and *lots* of good will at that, is to ensure that every household on its mains has a modern gas range that is as near perfect as possible.

When a house, new or old, is piped for gas, what is the first appliance considered by the housewife? The gas range of course! The water heater, the space heater, the furnace and the gas refrigerator come later in her consideration.

And as time goes on, with which gas appliance does the housewife come in most frequent contact? The gas range, of course, because with it she has to prepare three meals per day, every day in the year,—to say nothing of baking, canning and other less frequent functions.

Verily, to the housewife the gas range *IS* the gas company, its Ambassador of Good-will.—*W. H. Tappan, New York Regional Sales Conference.*

Gas Rate Held Not Confiscatory

A situation wherein a municipality granted a franchise and reserved the right to fix the rates—Other gas utility legal happenings

By Leo T. Parker

IT is important to know that, although ordinarily a municipality may not fix gas rates yet, if it has power to grant a franchise, a clause incorporated in the franchise is valid by which the city reserves the right to fix the rates. This point of the law was discussed in the recent case of Central Kentucky Gas Co. V City of Mt. Sterling, 32 F. (2d) 338. Here it was disclosed that a municipality granted a gas franchise which contained a clause by which the city reserved the right to fix the rates. The franchise further specified that if the gas company should be dissatisfied with the rates thus fixed, it may submit the controversy to the Court for final decision.

Soon after the city granted the franchise it enacted an ordinance specifying gas rates so low that the gas company immediately instituted legal proceedings asking the Court for an injunction to prevent enforcement of the rate ordinance, contending that the rates were confiscatory and that the city acted outside its power to enact a rate fixing ordinance.

However, the Court held the ordinance valid, saying:

"The plaintiff (gas company) alleges that the rates fixed by the ordinance were unreasonable and confiscatory, and that therefore that ordinance deprives it of its property without due process of law, in violation of the Fourteenth Amendment. . . . But it does not necessarily follow from the fact that the rates so prescribed are unreasonable and confiscatory that that ordinance so deprives plaintiff (gas company) of its property. It may be that those rates are unreasonable and confiscatory, and yet the ordinance does not deprive plaintiff of its property without due process of law. To hold that it does is to ignore the provisions of the ordinance granting its franchise which contemplated and provided that the board of councilmen of the defendant city should enact an ordinance prescribing rates. . . Here the ordinance complained of was enacted under, and in pursuance to, granting plaintiff (gas company) its franchise, which it had accepted, and to the terms of which it had agreed by such acceptance. That ordinance contemplated and provided that the board of councilmen of the defendant city should promptly enact an ordinance prescribing rates. It is true that it called for the prescription of reasonable rates. But the meaning was that the board should prescribe rates which it deemed reasonable without hearing or investigation. . .It is unimportant whether the board of councilmen of cities of the fourth class in this state have power generally to fix rates. They have power to grant franchises, and the power to grant a franchise includes the power to fix its terms, of which the rates to be charged may be one. As the rates to be charged could have been fixed in the franchise, so it would seem that the power to fix them by a subsequent ordinance reserved in the ordinance granting the franchise would be valid."

Landlord Personally Liable for Payment of Gas Bill

It is important to know that the owner of property always is personally liable for payment of a gas bill if by any verbal or written promise he authorized the gas company to supply the gas to his tenants.

For instance, in New Orleans Public Service V Lind, 121 So. 785, it was disclosed that the owner of a property authorized a gas company to supply gas to tenants who conducted a partnership business. Later the partners refused to pay the gas bill amounting to $767 and the gas company filed suit against the landlord. The Court promptly held the landlord personally responsible for payment of the gas bill.

Seller Liable for Injuries Caused by Defective Stove

Since many gas companies sell gas fixtures the recent case of King Hardware Co. V Ennis, 147 S. E. 119, presents unusually interesting legal information. In this case it was disclosed that a woman purchased a gas stove from a seller of fixtures who had purchased it from a manufacturer's State agent. The stove was defective and caused an explosion when the purchaser attempted to light it.

The injured woman sued the manufacturer, State agent and seller for damages to compensate her for injuries received. The retail seller attempted to avoid liability on the grounds that the stove was in the same condition when he sold it, as it was when the State agent delivered it to him. However, the Court held all three of the sellers liable, stating the following important law:

"All three of the defendants were negligent and liable to the plaintiff (injured person) because of having manufactured, furnished, and sold to her husband for her use a defective appliance. . .It is the general rule that the vendor or dealer, who is not the manufacturer, is under no obligation to test an article purchased and sold by him for the purpose of discovering latent or concealed defects, but that, when he purchases and sells an article in common and general use, in the usual course of trade, without knowledge of its dangerous quality, and with nothing tending reasonably to call his attention thereto, he is not negligent in failing to exercise care to determine whether it is dangerous or not. In such a case he may assume that the manufacturer has done his duty in properly constructing the article, and is not placing upon the market a commodity which is defective and likely to inflict injury. . .However, this is to speak *only* of articles which are not inherently dangerous. . We think it may be reasonably inferred from all the facts alleged that the defect was one which a reasonably prudent dealer should have discovered before placing it upon the market and delivering it to a customer."

Distinction Between Assignment and Sublease

The legal distinction between an assignment and a sublease is that in the former the original holder of the lease parts with his *whole* interest for the *whole* term, whereas in the case of a sublease the original holder retains for himself a *revisionary* interest in the lands involved.

In other words, an assignment creates no new interest, but transfers an existing interest into new hands, while a sublease creates a new estate resulting in the relationship of landlord and tenant between the original lessee and sublessee.

Sometimes the Courts have difficulty in determining whether a contract is an assignment or a sublease.

For instance, in Saling V Flesch, 277 Pac. 612, the original holder, named Saling, of a gas lease sold his interest to a man named O'Neil by the following contract:

"Now, therefore, for and in consideration of One and No/100 Dollars, (and other good and valuable consideration), the receipt of which is hereby acknowledged the undersigned, the present owner of said lease and all rights thereunder or incident thereto, do hereby bargain, sell, transfer, assign and convey unto John O'Neil all of his right, title and interest of the original lessee and present owner in and to the said lease and rights thereunder. . . *subject to the Commencement of drilling operations*. . .and further *subject to the payment by said John O'Neil of delay rentals* on all of original lease commencing March 1st, 1926 until lease is validated or reassigned."

Litigation resulted when Saling contended that this contract was a sublease and not an assignment.

It is interesting to observe that the Court held this agreement to be a sublease, saying:

"Whether the instrument resulting in the conveyance by plaintiff (Saling) to O'Neil was an assignment or a sublease depends upon the intention of the parties."

Gas Company Not Liable for Injury to Real Property

Generally speaking, a gas company is liable in damages for laying gas mains

(Continued on page 70)

TODAY—more than ever APPEARANCE Counts!

THERE'S a very definite demand for beauty of line and color. We see it in kitchen ware—in bath tubs, yes—and in gas water heaters. Welsbach—keeping abreast of the times and having already the most perfect performing gas water heaters on the market, took the natural step as leaders in the industry.

Today the Hotzones with their attractive buff shell and glossy black trimmings are among the most attractive merchandise in any gas showroom.

But behind these pleasing exteriors stands the convincing argument in the phrase, "They're made by Welsbach"—Welsbach, whose lifetime of experience and wide resources made it possible to add the final attraction—*price*. For at present figures, the Hotzone Self-Action Gas Water Heater enables commercial managers to offer their customers the greatest of all values in the water heater field. Welsbach Company, Gloucester City, New Jersey. Sales Offices in Principal Cities.

Member American Gas Association

Welsbach HOTZONE

SELF-ACTION GAS WATER HEATERS

Gas Rate Not Confiscatory

(Continued from page 68)

over another's property, in an amount dependent upon the actual damage caused. However, usually the Courts will not allow unreasonable damages.

For instance, in Huber v. Portland Gas Co., 274 Pac. 509, the owner of real property sued a gas company for damages alleged to have resulted from the latter laying a gas main through his farm. He demanded $2,000 stating that had the gas main not been placed thereon, the market value of this property would have been $4,000, but that with the gas main thereon it has a reasonable market value of no more than $2,000. He, also, stated that before the gas main was laid his property had rented for $50 a month and that for forty-seven past months he had been unable to rent it, thus effecting $2,350 damages. In addition to the $4,350 damages he demanded $1500, as punitive damages.

However, it is interesting to observe that the Court held the gas company not liable, stating the following important law:

"It is settled law that every unauthorized entry on land of another is a trespass, even if no damage is done. . . It is also settled that one who is permanently injured in his property by the wrongful act of another may recover compensation in an action at law for the market value thereof. Moreover, where the structure constituting the alleged nuisance is permanent, and injury is constant, or certain to occur, whole damages may be recovered at once. . .The proper measure of damages for permanent injury to real property is the diminution in the market value of the property; and if land is taken, or the value thereof totally destroyed, the owner is entitled to recover the actual cash value of the land at the time of the taking or destruction, with legal interest thereon to the time of the trial. . .Usually, depreciation in the value is determined by taking the difference between the value immediately before and that immediately after the injury, and in some jurisdiction where the injury is continuing and recurrent, the rule as to the measure of damages is the difference between the value of the injured premises before and after each repetition of the wrong. . .Now, taking up the question of punitive damages, we have read the complaint with care in order to ascertain whether it states facts upon which a judgment for punitive damages might be based. . .That the defendant (gas company) wrongfully entered upon the premises is evident, but there is no allegation to warrant a finding that in so doing the defendant acted with malice."

Gas Company Not Liable for injury to Trespasser

The law is well settled that officials of a gas company are bound to exercise ordinary care to safeguard workmen and other persons rightfully on the premises from injuries. However, the law is well established that a gas company owes no [illegible] duty to a trespasser.

For instance, in Cleveland Illuminating Co. v. Van Benshoten, 166 N. E. 374, a gas company while performing work in a street temporarily installed a small building over a manhole communicating with a sewer about 20 feet below, for the use of its workmen as a toilet during working hours. The toilet was placed in the center of the street in the morning, and removed from the street in the evening. While it was in the street two red flags were hung near its top for the purpose of warning traffic.

About 10 a. m. on April 29th, a pedestrian observed the toilet building located in the center of the street and entered it for the purpose of using the toilet.

While he was in the building he lighted a match and an explosion of gas occurred, seriously injuring him. He sued for damages. However, it is interesting to observe that the Court held the injured pedestrian not entitled to damages, saying:

"The building was not erected for the use of the public. The defendant (gas company) did not know that the plaintiff (pedestrian) was in its vicinity, consequently the plaintiff was neither an invitee nor a licensee, *but a trespasser*, upon the defendant's property. . .In order to recover, it was necessary for the plaintiff to prove not only that the defendant owed him a duty, but that his injuries resulted from a breach of that duty. The intervening immediate cause of the accident was plaintiff's act in lighting the match which caused the explosion. The building was erected for the sole use of the working gang: its use by the public was not contemplated."

Duty of Gas Company Employes to Pedestrians

It is important to know that the employes of gas companies are bound to exercise ordinary care to provide a reasonable safe passageway over sidewalks and streets which are being excavated for installation of its equipment

For example, in a recent case [11 S W. (2d)], a woman pedestrian sued a gas company for $2,750 for injuries sustained when she slipped and fell on a concrete slab that had been laid over a ditch by the company's employes.

The testimony proved that the slab appeared to be substantial, but that it had been carelessly laid by the workmen upon uneven ridges of dirt, with the result that it tilted when the woman stepped upon it. In view of this testimony the Court held the gas company liable.

Obviously, in litigations involving injuries to pedestrians the latter never are entitled to damages for injuries sustained, if it is proved to the satisfaction of the Court that the injured person failed to exercise ordinary care to protect himself against the injury.

Therefore, employes who assume responsibilities of laying boards, slabs, or other material, for passage of pedestrians, or vehicles, should exercise care to know that the foundation is secure.

Liability Created by Exploding Gas Leaking from Uncapped Pipe

Generally speaking a gas company is expected by the law to exercise care to know that its pipes are properly connected to avoid injuries caused by escaping gas, irrespective of reports made by municipal or State inspectors.

For instance, in the recent case of Sawyer v. Southern California Gas Co. 274 Pac. 544, it was disclosed that the gas connections in a new building were inspected and approved by the city inspector. Later when the gas company turned on the gas it escaped from a pipe having no cap and exploded resulting in severe injuries to the occupants of the building. The gas company contended that it was not liable because the connections were approved by the city inspector. However, the Court held the gas company liable, stating important law, as follows:

"The company made no inspection to detect the uncapped pipe when the meter was installed. . .While it is generally held that there is no duty on the part of a gas company to inspect house pipes after service has once been established, and consequently no liability for injuries resulting from an escape of gas through house pipes which become defective in the absence of notice of a leak in the house pipes or other special circumstances creating a duty to cut off its supply of gas. . .it does not follow that a gas company may turn on meters through which gas passes into uncapped house pipes without incurring liability for injuries to persons or property caused thereby."

Lease Contract Construed Against Person Who Writes It

It is well established in law that an ambiguous contract will be construed strongly against the person who writes it. The same law is effective with respect to gas leases.

For illustration, in Habermel v. Mong, 31 F. (2d) 822, the owner of land and a lessee entered into a lease contract by the terms of which the latter agreed to complete drilling a well within five months or pay $50 in advance, for each three months delay. The contract also provided that the lessee should begin drilling within sixty days and use due diligence to complete the well.

The lessee did not begin drilling within sixty days, but attempted to pay $50 each three months to maintain the lease. The owner of the property contended that the proper legal construction of the contract is that the lessee forfeited his rights in the lease when he failed to begin drilling within sixty days.

It is interesting to observe the Court held the lease contract forfeited when the lessee failed to begin drilling within sixty days, saying:

"It is well established that a promise to dig a well or pay delay rental, or a condition in a lease that, unless delay rental be paid, the lease shall terminate if a well be not drilled within a certain

(Continued on page 72)

use a GOVERNORET *on every*

Gas Burning Appliance

BENEFIT BY THESE FEATURES

1 Minimizes Service Calls.

2 Eliminates the occasional roar, if any.

3 Eliminates carbonization on low consumption of gas.

4 Maintains constant outlet pressure on burner regardless of fluctuating inlet pressure.

The GOVERNORET has been approved by Electrolux Servel —

Essentially a low pressure appliance regulator, where inlet pressure does not exceed 2 lb. per sq. in. and constant outlet pressure is required in inches of water.

The Governoret can be installed on an Electrolux Refrigerator or any gas burning appliance, it will insure peak performance from the standpoint of economy and efficiency.

Made in pipe sizes from ¼ to 1 inch inclusive.

Write Today for Full Details

GAS INDUSTRY Laboratories
Incorporated

LONG ISLAND CITY, N. Y. H. A. HAYWARD, Pres. and Treas.

Gas Rate Not Confiscatory

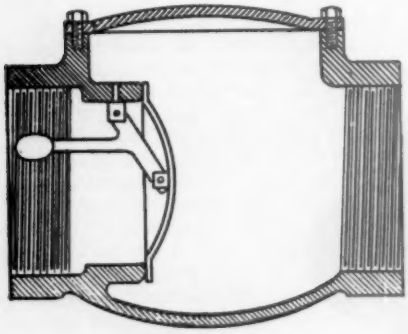
(Continued from page 70)

time, is ordinarily satisfied by the payment of delay rental. . .Oil and gas leases, moreover, prepared, as they customarily are, by the lessee, and as was printed provision upon which appellant relies in this case, are usually construed most strongly against him and in favor lesson."

Equipment News

The Gil Counter-Balanced Back Pressure Valve

The Gil Counter-Balanced Back Pressure Valve, recently brought out by Gas Industry Laboratories, Inc., 75 Second Avenue, Long Island City, is for use on installations of appliances subject to high temperature, such as gas fired ovens, furnaces or boilers.



The flaps are made of non-corrosive Chrome steel to withstand explosive back pressures with all gaskets of special asbestos service-packing.

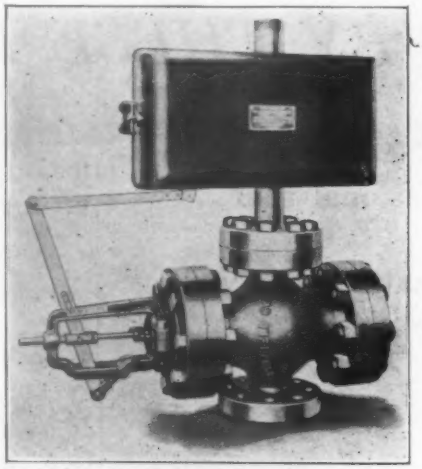
The valve is counter-balanced to permit of a minimum of differential loss and is made in sizes from ¾" to 20". Up to 4", screw connections are provided, while the larger sizes are flanged, with drilling optional.

The valve flap can be removed from valve without taking valve out of the pipe line

Automatic Flow Control at 1300 Lb. Pressure and 600°F.

Accurate measurement of flow at high temperatures and high pressures is an important part of the general problem of high pressures now commanding much attention in the field of steam plant design and in other applications as well, such as the oil refineries, the chemical plants and other industries. The automatic control of flow at these high pressures and temperatures, extremely desirable in many applications, adds further complications to the manufacture of flow metering equipment destined to cope with high pressure conditions.

Among the installations of this character dealing with high pressures are several made by The Brown Instrument Company, Philadelphia. In these installations the Brown Forged Steel Manometer is used with the Brown Electric Flow Meter, operating on the inductance bridge principle, to govern specially constructed remote control valves. One of the latest installations of this character handled by The Brown Instrument Company employs the valve shown in the accompanying illustration.



This valve is designed to control automatically the feeding of hot oil to a petroleum cracking still and is built to operate at 1300 lb. pressure and 600° F. temperature. This valve in the still feeder line is controlled by the setting of a Brown Automatic Control Flow Recorder located on the instrument panel of the control house, which may be any distance from the still.

This installation is typical of many applications to the control of steam, water, process liquors, gases, etc.

New Manometer is Combined Flow-Meter and Pressure Indicator

An interesting modification of the regular U-tube manometer, now being placed on the market by the Meriam Co. of Cleveland, Ohio, permits the instrument to be used as either flow meter or as a pressure indicator. The illustration shows the new instrument as applied to a differential control system for gas and steam pressure, as used in a gas-heated steam heater, but it is obvious that there are many other types of equipment to which it can be applied.

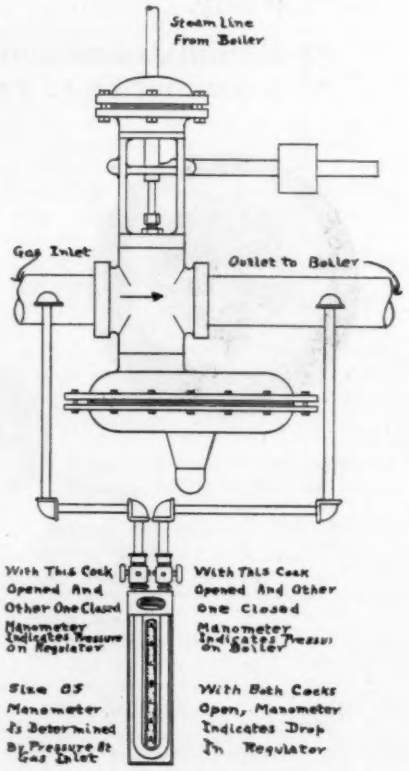
The operation of the instrument depends upon the fact that all manometers operate upon the differential principle whether rate of flow or actual pressure is indicated.

When a manometer is used to read pressure of liquids or gases, one of the arms is connected to the atmosphere and the other to the source of pressure to be measured. The difference produced in the liquid levels in the two arms shows the difference between the pressure measured and that of the atmosphere.

Each inch of difference in level indicates .036 lbs. per square inch pressure if the liquid used is water, or .491 lbs. per square inch if mercury is used. Other liquids give results proportional to their specific gravity.

When a manometer is used to indicate flow of liquids or gases, the two U-arms are connected one on each side of an alloy steel disc connected in the pipe line whose flow is to be measured. The steel disc has an orifice of known size, and this produces a definite drop of pressure for a given rate of flow. This drop is shown on the manometer, which is calibrated to read rate of flow.

Hitherto, it has been necessary to use two manometers when both pressure and flow readings are required, but the new instrument avoids this difficulty by a simple extra device.


Steam Line From Boiler
Gas Inlet
Outlet to Boiler
With This Cock Opened And Other One Closed Manometer Indicates Pressure On Regulator
With This Cock Opened And Other One Closed Manometer Indicates Pressure On Boiler
Size Of Manometer Is Determined By Pressure At Gas Inlet
With Both Cocks Open, Manometer Indicates Drop In Regulator

In the accompanying diagram, it will be seen that with the left-hand cock open and the right-hand one closed, the manometer is between the gas line and the open air, and therefore reads gas pressure. With the reverse arrangement of the cocks closed, the manometer is connected to show pressure across the regulator—or, if a double scale and the measuring disc be also provided, the rate of steam flow.

Gas Range With Patent Shelves

Abendroth Bros., Portchester, N. Y., have recently offered to the trade their new York gas range, in which is included an oven shelf with distinctive features.

These shelves slide with ease, are quick-

(Continued on page 74)

THE MOST UNIQUE USE OF GAS!
Photograph shows tray of ice cubes, made from heat of gas flame, being removed from an Electrolux Gas Refrigerator.

This new use of gas . . .

the most talked about application in the industry

Electrolux Gas Refrigerator gives gas companies big cut of profitable refrigerator market . . . definitely superior because of its silence and simplicity

THE NEWEST . . . the most dramatic use of gas! Not for heating . . . not for any of the customary appliances that are an old story to your customers . . . but for refrigeration! Heat making cold! Gas making ice!

What a sales and load-building opportunity this opens to gas companies! An opportunity that has already resulted in 2½ times greater Electrolux sales in the first half of 1929.

For every home today is interested in automatic refrigeration . . . realizes it as the most modern of all up-to-date kitchen equipment. Electrolux not only gives you a sales opening in this tremendous market . . . but a definitely superior refrigerator to sell.

Noiselessness . . . low operating cost . . . long life . . . freedom from service and repairs . . . all these are points that weigh heavily with the man or woman about to buy. And all are superior features that only Electrolux can give.

Come in for your share of Electrolux steadily increasing sales. Write, wire or phone today for any merchandising or sales helps you need to Servel Sales, Inc., Evansville, Indiana.

ELECTROLUX
THE GAS REFRIGERATOR
MADE BY SERVEL

An All Gas Home for Every Gas Man

Equipment News

(Continued from page 72)

ly adjusted to any desired height and are stated to maintain their efficient operation indefinitely. Small stops at the back prevent these shelves from falling out.

It is claimed that the York sliding shelves remove the necessity of bending over and reaching into hot ovens and eliminate strain and danger of burns. The slides, being self supporting, leave both hands free and permit the examination and handling of oven contents outside of the oven itself.

The "Cajo" Gas Leak Detector

The "Cajo" gas leak detector is designed to indicate instantaneously the presence of small amounts of light as well as heavy gases mixed with air. Its operation is based on diffusion. The instrument therefore is not intended for the indication of slow changes, but to detect local air changes or differences in concentration.

The main part of the "Cajo" leak detector consists of a porous clay cylinder connected with a diaphragm by means of a small tube. Through the walls of the completely closed cylinder, filled with as well as surrounded by air, a constant interchange of gas from inside to outside, and vice versa, takes pace at a uniform rate. If the surrounding gas is lighter than air, the transfusion from outside to inside is faster than the transfusion from inside to outside, and results in a pressure increase in the cylinder. If, on the contrary, the surrounding gas is heavier than air, the transfusion from inside to outside will take place more rapidly than the reverse operation, and a decrease in pressure will then be observed. The pressure differences which take place in the cylinder under the conditions mentioned, act on the diaphragm, the raising or lowering of which opens or closes an electric contact.

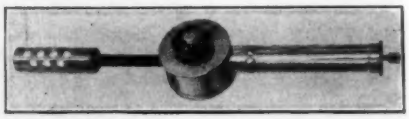
For example, if the cylinder comes into contact with light gases, the resultant increase in pressure lifts the diaphragm, closing the contact lighting a small light. If, on the other hand, the cylinder comes into contact with heavy gases, the circuit is broken and the light extinguished.

The gas leak detector is adjusted by means of a screw with a knurled handle. When testing for light gases, the contact-screw is turned until the lamp lights, and then turned back just enough to again extinguish the light. A slight movement of the diaphragm, due to the increased pressure caused by the transfusion, is then sufficient to again light the light.

If on the other hand, tests are to be made for heavy gases, the contact screw is adjusted so that the light just lights, so that when a pressure below atmospheric sets in, the movement of the diaphragm breaks the circuit.

The sensitiveness of the instrument can be varied according to the adjustment of the contact-screw. The instrument can be set so closely that the carbon dioxide of the human breath will instantaneously extinguish the light.

The current for the lamp is supplied from a flash light battery, which with the lamp is fitted in the handle of the instrument. A second contact-screw is provided on the end of the handle to break



the circuit when the instrument is not in use. This prevents wasting the battery. As the contact between the membrane and the micro adjusting screw takes place in a gas-tight, completely enclosed housing, there is absolutely no danger of explosions due to sparks.

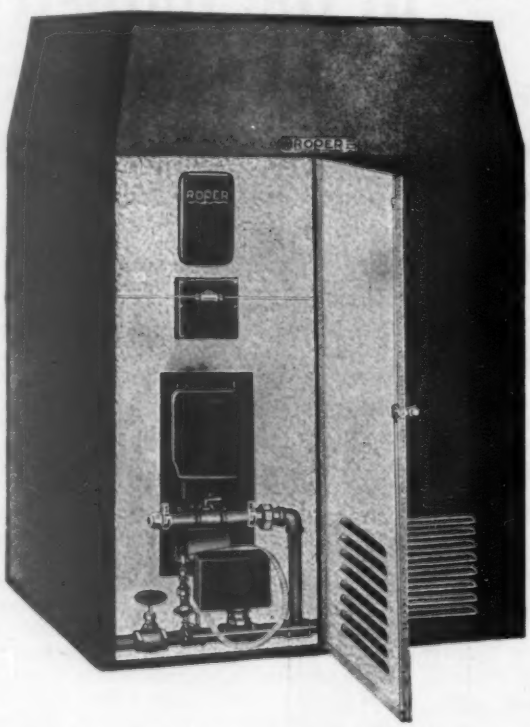
The "Cajo" gas leak detector will detect the escape of all gases, either lighter or heavier than air. Its sensitivity permits the detection of an illuminating gas content in air as low as 0.03%—far below the explosion limit as well as the health endangering point.

The detection is instantaneous, as soon as the porous cylinder comes into contact with the gases, and the indication is positive. Slowly and gradually increasing concentrations are not shown by this instrument.

Further information may be had from Colonial Supply Co., 217 Water St., Pittsburgh, Pa.

Roper Gas-Fired, Warm Air Furnace

Geo. D. Roper Corporation, Rockford, Illinois, have recently placed on the market a gas-fired, warm air furnace. This appliance which has been tested and approved by the A. G. A. Testing Laboratory has its heating surface so arranged that a minimum amount of heat is radiated to the casing. The flow of air through the furnace is stated to be free and unobstructed, permitting high velocity and giving a good scrubbing action.



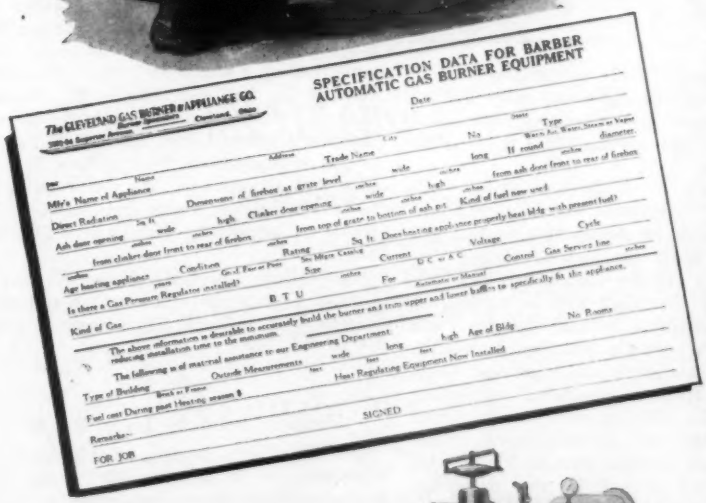
The furnace is so constructed that it is claimed to be absolutely leak-proof and gases are prevented from escaping into the circulating system. The construction of the unit is according to good engineering practice and represents the best method of transferring the greatest amount of warm air possible, at the most desirable temperature. The advanced construction and design produce increased efficiency, greater economy and satisfaction.

The gas burner is of cast iron construction with raised, drilled ports scientifically designed as to port area, distance between ports, etc., so that a well aerated flame is obtained,—giving maximum efficiency. The mixers are all scientifically designed Venturi throat type.

All automatic equipment is concealed back of the door at the front of furnace, making a completely enclosed cabinet and making it thus less likely that anybody will tamper with the controls after the furnace is once installed.

A safety pilot closes the circuit between the thermostat and the gas valve while pilot is burning. Should pilot light go out, the circuit is broken and the valve closed, preventing flow of gas to main burner. Pilot supply is also cut off. Pilot is of the Bunsen type preventing carbonization.

Show Them how It's done With BARBER *Automatic* JET GAS BURNERS



The CLEVELAND GAS BURNER & APPLIANCE CO.
3102-04 Superior Avenue, Cleveland, Ohio

SPECIFICATION DATA FOR BARBER AUTOMATIC GAS BURNER EQUIPMENT

Date

For
Mfr's Name of Appliance — Name — Address — Trade Name — City — No. — State — Type
Direct Radiator — Sq. ft. — Dimensions of firebox at grate level — inches wide — inches high — If round — inches diameter
Ash door opening — inches wide — inches high — Clinker draw opening — inches wide — inches high — from ash door front to rear of firebox
— inches from clinker door front to rear of firebox — inches from top of grate to bottom of ash pit — Kind of fuel now used
Age heating appliance — years — Condition — Rating — Sq. ft. Direct cast iron equivalent properly heat bldg. with present fuel?
Is there a Gas Pressure Regulator installed? — Gas Fire or Pilot — Size — inches — Fire — Current — D. C. or A. C. — Voltage — Control — Gas Service line — Cycle — inches
Kind of Gas — B. T. U. — Automatic or Manual
The above information is desirable to accurately build the burner and iron wagon and lower baffle to specifically fit the appliance, reducing installation time to the minimum.
The following is of material assistance to our Engineering Department.
Type of Building — Brick or Frame — Outside Measurements — feet wide — feet long — feet high — Age of Bldg. — No. Rooms
Fuel cost During past Heating season $ — Heat Regulating Equipment Now Installed
Remarks:
FOR JOB — SIGNED

Ask for your supply of Specification Data Sheets, containing valuable data to be used by your salesmen to order Barber "Tailor-Made" assemblies—designed specifically to fit the Boiler, Furnace or Appliance for which they are intended.

YESTERDAY'S

Makeshift Methods Might Do—but

TODAY'S

Specialization and the Barber "Tailor-Made" Plan Bring Real Success — Without Guess-Work

Conditions change practically overnight in many industries . . . and, in the Gas Conversion Market a decided change has taken place.

The pioneer days are gone—involving the necessity of convincing the trade that there is a MARKET for good Gas "Conversion Burners." Forever past is the equally makeshift method of merchandising *Gas Conversion Burners.*

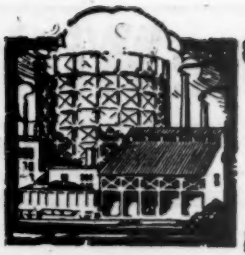
The AUTOMATIC era is in vogue—and foremost in evidence is the universally popular demand for the Barber AUTOMATIC Jet Gas Burner System . . . the most scientific, completely self-controlled burner with the highest efficiency in the gas conversion field.

You don't have to *guess* any longer as to the correct burner equipment to order. You don't have to "sweat blood" over *laborious installations.* You don't *shrink your profits* from burdensome overhead. *You simply use the Barber Specification Data Sheet.* Fill in the information required. Send it to us. We then furnish a Barber "Tailor-Made" Burner Equipment based on these Specifications. Your installer quickly completes the installation and your sale is accomplished with *clean profits.*

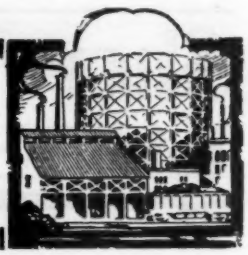
The CLEVELAND GAS BURNER & APPLIANCE CO.
Burner Specialists
3102-04 Superior Avenue, Cleveland, Ohio

Because of the greatly increased demand for Barber AUTOMATIC Gas Burners, we invite correspondence from Direct Factory Representatives and Distributors that have experience selling the Heating Trade and Gas Companies.

BARBER *Automatic* JET GAS BURNERS



NEWS OF THE GAS INDUSTRY



New House Heating Gas Rate

A house heating gas rate of 75 cents per thousand cubic feet, effective September first, has been approved by the City's Gas Commission according to an announcement by Conrad N. Lauer, president of the Philadelphia Gas Works Company.

The new rate will be available for heating homes and other buildings along the company's mains. The service will be through a separate meter and on a special house heating contract.

Under this contract the customer will agree to use the service throughout the heating season from October to May, inclusive, at a minimum charge of $150 for the period, or $18.75 per month, which is the cost of 200,000 cubic feet of gas for the season at the 75 cent rate, or 25,000 cubic feet a month.

"The use of gas for heating homes and other structures," Mr. Lauer said," is rapidly growing throughout the country. In Philadelphia there are now approximately 1300 installations and under the new rate these customers will be benefitted to the extent of more than $100,000 a year.

"For sometime we have been making a thorough study of the situation and are pleased that we can offer this low rate to the people of Philadelphia at this time when thoughts are turning to preparations for this winter's heating.

"The healthfulness, cleanliness and convenience of gas heating are generally recognized, and with the new rate it is now possible for the average family to use gas for heating at a cost not greatly in excess of the cost of other fuels, or at no greater cost when the advantages of the service are considered."

New Natural Gas Service

The Cities Service Company is extending its natural gas pipe line from Atchison, Kansas, to Falls City, Nebraska, a distance of fifty-three miles. Other sections will be tapped on from time to time. The feeder service comes from the Texas panhandle.

Southern California Gas Company Granted Permission to Extend Natural Gas Lines

The California State Railroad Commission, according to A. B. Macbeth, President of the Southern California Gas Company, has recently issued a Certificate of Public Convenience and Necessity under which his Company will be able to extend their lines and serve natural gas in Kings, Fresno, Merced, and Madera Counties. The Company already operates in Visalia, Tulare, Hanford, and many other central San Joaquin Valley cities and towns, and these will also be supplied with 100% natural gas.

Natural gas to supply this territory will be obtained by utilizing the large volumes made available by the development of the Kettleman Hills gas and oil field.

Work has already been commenced on part of the line, and will be rushed as rapidly as possible. Service of natural gas has definitely been promised before winter. The main line is to run northeast from Kettleman Hills to Lemoore and thence north to the vicinity of Fresno. From this line there will be two lateral transmission lines running east to supply the territory now served by the Southern California Gas Company. The transmission lines will be continued northwest from near Fresno as far as Merced, and possibly Turlock; this latter town is now served with manufactured gas by an affiliated company

In addition to supplying the present gas needs of this section of the San Joaquin Valley, gas will be available for industrial uses. Mr. McBeth stated that this has been one of the large factors in the upbuilding of industry in Los Angeles and vicinity, and that many factories have been established on the present lines of the Southern California Gas Company due to the availability of this cheap, clean, and efficient fuel. He believes that it is probable that there will be a marked growth in the population of the Valley and more stabilized prosperity which will be attributable to the advantages of natural gas service.

Approximately one and one-half million dollars will be spent on this expansion and the major portion should be completed by the first of October.

Convention Calendar

September

10-13 Pacific Coast Gas Association, Annual Meeting, Hotel del Monte, Del Monte, Cal. Clifford Johnstone 44 Sutter Street, San Francisco, Cal., secretary.

October

14-18 American Gas Association, Annual Meeting, Atlantic City, N. J. Alexander Forward, 420 Lexington Avenue, New York City, managing director.

Missouri-Kansas Pipe Line Co. Making Plans to Enlarge Operations

Missouri-Kansas Pipe Line Co. has recently taken over leases on nearly 40,000 acres of proven natural gas territory in Wilson, Neosho and Montgomery counties, Kansas, according to Frank P. Parish, president, and is making plans to enlarge its operations in this territory which extends over 625 square miles. Approximately 500 shale gas wells have been drilled in by the company in the three counties, comprising some of the richest shale gas area in the United States.

Aside from a contract with the American Pipe Line Co. for the delivery of nearly 6,000,000 cubic feet of gas per day for partial industrial and domestic consumption by Kansas City, Mo., Missouri-Kansas Co. has contracts in the Kansas area for delivery of natural gas to the Jackson County Light, Heat and Power Co., at Independence, Mo.; Belton, Martin City and Grandview, Mo.; Bucyrus and Somerset, Kansas, Paola and Osawatomie, Kansas; Louisburg, Kans. and Ottawa, Kans.

Open flow gas test of the Missouri-Kansas Co., in the Kansas City and east Kansas area alone is approximately 170,000,00 cubic feet of gas per day.

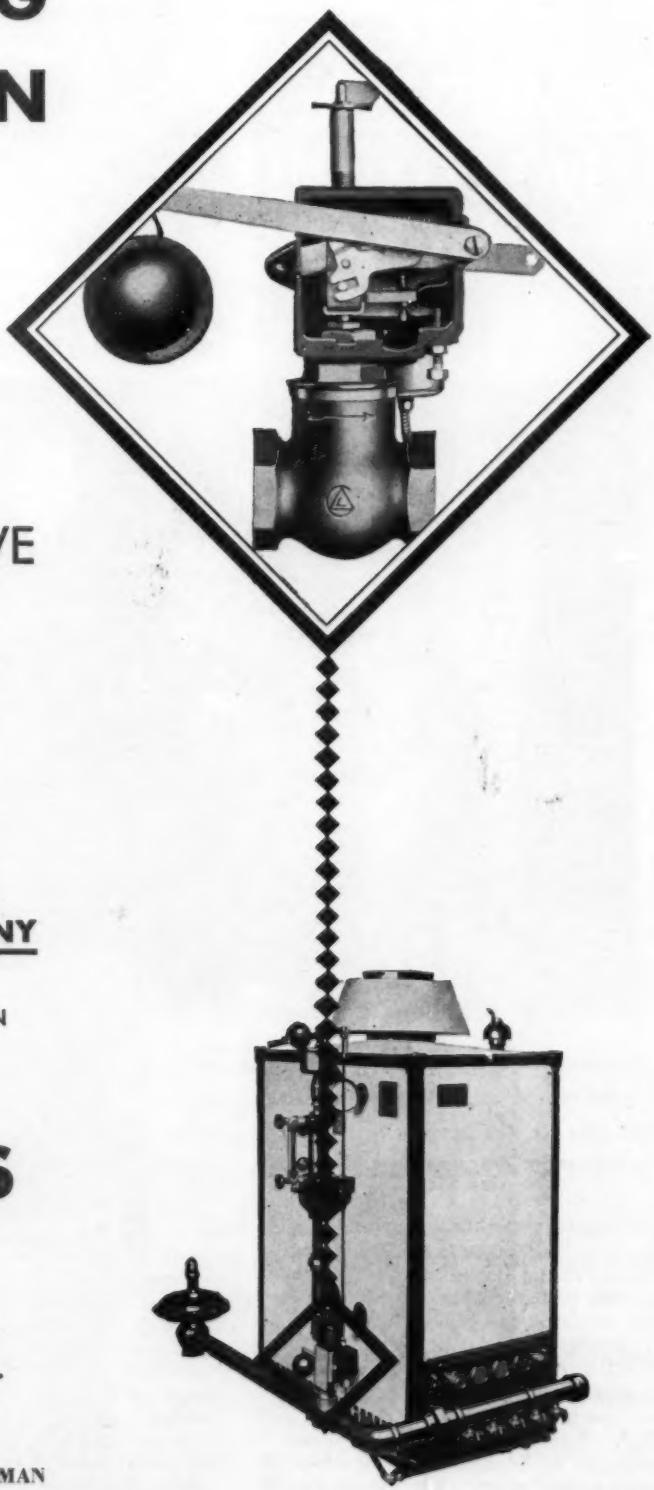
Petition Filed to Issue Bonds

The Northern Indiana Public Service Company, in a petition filed with the Indiana public service commission, asks permission to issue and sell $15,000,000 of its 40-year first and refunding gold bonds to bear interest of not more than 5 per cent. A second petition filed with the commission asks authority to issue $7,500,000 Northern Indiana Gas and Electric Company first lien and refunding mortgage bonds, six per cent series, the proposed issue to be pledged as collateral under the Northern Indiana Public Service Company's first and refunding mortgage. The Northern Indiana Gas and Electric Company was merged into the Northern Indiana Public Service Company in 1926.

The petition states that the Northern Indiana Public Service Company proposes to sell the $15,000,000 bond issue at not less than 91 percent of par value to yield $13,650,000. Proceeds from the sale will be used to reimburse the company's treasury for capital expenditures already made and to finance future additions and extensions to the company's facilities.

(News continued on page 78)

AN OUTSTANDING CONTRIBUTION to GAS HEATING



• SECOND •

THE THROTTLING VALVE

A PRINCIPLE OF GAS SUPPLY CONTROL . . . . DEVELOPED AND ESTABLISHED BY THE GAS UTILIZATION DEPT. OF THE

AMERICAN RADIATOR COMPANY

FOUND PERFECTED TO HIGHEST EFFICIENCY ON

IDEAL GAS BOILERS

SEND FOR FULL INFORMATION TO

AMERICAN GAS PRODUCTS CORP.
376 LAFAYETTE STREET . . NEW YORK

A MODERN ALL GAS HOME FOR EVERY GAS MAN

A Fine Service Record

In the Laclede Gas Light Company of St. Louis there are five executives and department heads having a combined service record of 196 years or an average of 39.2 years each, and their combined ages is 288 years, or an average of 57.5 each.

The have advanced from office boys to the positions they now hold through energy and courage. The climb up the ladder was not an easy one and any one of the five can tell tales of long hours and hazardous tasks that would tax the loyalty of those less true to a cause.

To have served one Company a quarter of a century is a record one may well be proud of, but these five have each exceeded that and two are but a little short of half a century. Not one of the five has ever worked for any other company than The Laclede.

William S. Dodd, Treasurer, has the longest record having been with the company 45 years. John J Burns, head of the Commercial Department is next with a record of forty years. He is followed by his assistant, Ed. S. Murray, who started to work the first of June, 1891. A. E. Garvin, head of building maintenance and E. J. Stanton, Superintendent of Electrical Distribution, each have a record of thirty-seven years.

The record of Mr. Dodd, in itself, is remarkable, but his father before him worked for The Laclede for thirty-seven years and his brother George Dodd, superintendent of the Street Department has been with the Company thirty-five years.

J. J. Burns has worked in practically every department of the Company and is known to many gas executives in the United States by reason of having been chairman of the Commercial Section of the American Gas Association in 1927 and 1928.

Garvin succeeded Burns as an office boy and likewise has climbed from the ranks.

Mr. Stanton started as a groundman and has had practically every kind of experience from firing boilers on up.

Top row (left to right) J. J. Burns, A. E. Garvin, F. J Stanton. Sitting (left to right) E. S. Murray, W. S. Dodd

Construction Progresses on Sheboygan Gas Plant

Construction work is well under way on the new 1,500,000 cubic foot gas plant for the Wisconsin Public Service Corporation at Sheboygan, according to J. P. Pulliam, vice president and general manager of the Company.

All of the piling and most of the foundations are completed. The brick work for the Koppers ovens is about six feet high. The brick work for the ovens is expected to be completed and ready for drying by October 1. It will require between six weeks and two months to dry out the oven brick work and bring it to operating temperature, which is about 1,800 degrees Fahrenheit.

Two fairly new methods are to be tried out in the Sheboygan Plant. One is the use of a cork pad in the foundations of the gas compressors to eliminate vibration and the other is the cooling of the gas with one condenser instead of two which has been the customary practice heretofore. The condenser is to be placed out of doors instead of inside of a building, according to L. J. Willien, operating gas engineer, Byllesby Engineering and Management Corporation.

The construction schedule calls for the completion of the plant by December 1, 1929.

Property Transfer

Consent of the Public Service Commission, Albany, N. Y., was given recently to the Keystone Gas Company to transfer its property to the Keys Gas Company, Inc., as of December 31, 1928, in exchange for 4,000 shares of common capital stock, without par value of the Keys Gas Company, Inc., the stated value of which will be determined later by examinations. Commissioner Pooley conducted hearings on the petition and in a memorandum accompanying the order points out that the transfer will result in better and more dependable service.

The Keys Gas Company, Inc., was organized to take over the natural gas plants of the Home Gas Company in Ceres, Allegany county. The Keystone company distributes natural gas in Olean. The price to be paid for the assets of the Home Gas Company is $10,000 The capital stock of the Home Gas Company is $10,000. The Columbia Gas and Electric Corporation, a Delaware corporation holds the stock of the Keystone Gas Company, "About the only change that will be made by the proposed transfer," said Commissioner Pooley,will be to substitute a New York State Corporation for a Pennsylvania state corporation." Neither the Home Gas Company nor the Keystone Gas Company produces gas, the former buying from individual producers and the Keystone Company from sources affiliated with the Columbia Gas and Electric Corporation.

Jersey Central Purchases Cape May Gas Company

The Jersey Central recently purchased and took over the operation of the Cape May Gas Company, serving Cape May and West Cape May.

This property will be operated as a part of the Southern Division.

Company Honored by Guggenheim Foundation Aeronautics Award

The Public Service Company of Northern Illinois, Chicago, was honored for its aid to aviation when recently L. C. Stephens, District "J" Manager, was presented with an award by the Guggenheim Foundation for services in the promotion of aeronautics.

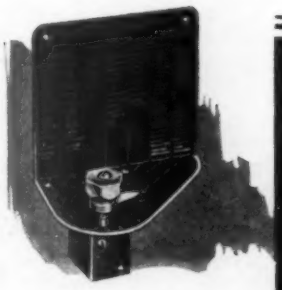
The award was in the form of a testimonial signed by Colonel Charles A. Lindbergh and Harry F. Guggenheim, for the erection of the air marker on the roof of the Company's new building at Joliet.

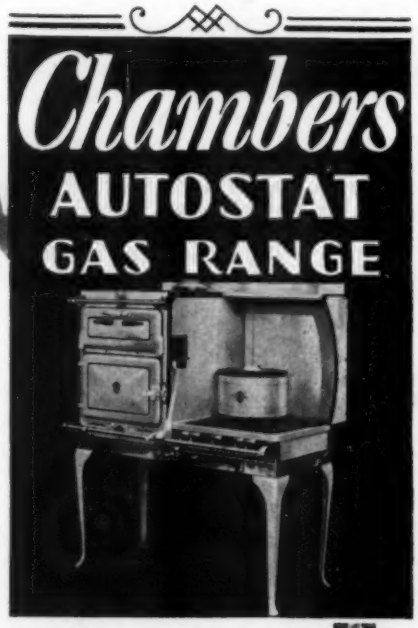
Traced in yellow electric lights on concrete letters 12 feet high the marker spells out Joliet together with a 20 foot direction arrow as guide to night fliers. In the near future the white background of the sign will be sprayed with black paint to make the sign more easily seen during daylight.

(News continued on page 80)

The Autostat, an exclusive feature, shuts the gas off completely when the correct oven temperature is reached so that cooking will be completed on stored heat. This is but one of the major "talking points" exclusive to this range.

Setting the Stage for Gas Range Selling





COOKS WITH THE GAS TURNED OFF

Awarded the Grand Prize, Paris, 1928. Endorsed by leading cooking institutes and by American Gas Ass'n.

We live in an age in which "romance" is a big factor in selling. By that we mean that the purchases of the public are largely influenced by the selections of prominent people and prominent institutions. Moreover, in a cooking appliance, the public is deeply concerned with health arguments such as the retention of vitamines and food salts.

It is difficult for a dealer to set the stage unaided in creating a romantic glamor around the products he sells. The manufacturer must do it for him.

In this respect, the stage is set elaborately for the sale of Chambers Autostat Gas Ranges.

ST. VINCENT'S HOSPITAL
LOS ANGELES
SMALL VIEW OF
DIETICIAN'S DEPARTMENT

This illustration with endorsement from hospital management is appearing in Chambers national advertising.

The Factory organization provides Chambers Dealers generously with forceful sales material. Endorsements from notable hospitals, apartment houses, cooking institutes and distinguished American housewives are used liberally in "dramatizing" this exceptional gas range.

In addition, the Dealer has a cooking appliance that outperforms all others in convenience of operation, in gas and food savings, in all around efficiency.

That is why you should investigate the Chambers proposition if this range is not already represented in your territory.

The Chambers Manufacturing Company

34 Columbus Park Shelbyville, Indiana

Originators of the insulated gas range, the Thermodome and the Autostat.

Laying Distribution Mains in Columbia City, Ind.

Gas service will be available to residents of Columbia City, Ind., early this fall, according to S. E. Mulholland, vice president of the Northern Indiana Public Service Company of Fort Wayne. The work of laying distribution mains in Columbia City has just begun and a large force of men will be employed during the summer. A pipe line, the contract for which has been awarded, will connect Fort Wayne and Columbia City. The company already operates a high-pressure gas transmission line from here to Huntington, Ind. The new line will connect to this one already in operation, the point of connection being about 17 miles distant from Columbia City. Shortly the company will open a gas appliance and display store in the city about to be served.

Brooklyn Borough Gas Company Erecting Model Shop at Coney Island

Carrying out its policy of attractive buildings, the Brooklyn Borough Gas Company will shortly commence construction of a model shop at a cost of approximately $300,000. It will be erected at Neptune Avenue and West 8th Street, Coney Island, New York.

Within close proximity of the company's main plant, where all the gas is made for refrigeration, cooking and heating purposes, for the oceanfront district of Brooklyn, including Coney Island, this new shop will be reared. After a study of more than a year by company officials under the direction of Mary E. Dillon, president, Block and Hesse, architects, were commissioned to draw plans for the structure.

The result will be a handsome rambling group of buildings, Tudor in style, and constructed of brick, cement and steel. The structure will include a railway loading platform, a complete garage, a motor-car loading platform, repair shops, stock rooms, tool shops, a machine room, appliance storage rooms, drafting rooms, appliance testing rooms, meter proving laboratories, etc.

For employees, the company has made provision in the building for rest and luncheon rooms. There will be showers for them, too, as well as other installations for their comfort.

The main building will be two stories in height, and will have an abundance of natural light. The garage will be sufficiently large enough to care for sixty cars, and will be equipped with a shop, gas pumps and oil reservoirs.

Besides a showroom in which modern gas-fired appliances will be on display, there will be a district business office for the convenience of the company's patrons residing or doing business in the immediate vicinity. All up-to-date office systems will be installed in the office for the expedition of orders. In fact, the entire plant has been designed to give maximum service to the consumer. The building will have 35,000 square feet of floor space.

Miss Dillon, has had included in the plans a low, ornate brick garden wall. Specifications call for English ivy to be set out for the buildings' walls. There will also be beds of old fashioned flowers and a spacious lawn facing Neptune Avenue.

Plant Expansion Program Planned

Expenditure of approximately $779,000 during the next six months on a plant expansion program is planned by the Citizens Gas Company, Indianapolis, Ind. Erection of a battery of forty additional coke ovens, installation of a new compressor and extension of the compressor house at the company's Prospect street plant, are planned.

Contract for the work has been let to the Wilputte Coke Oven Corporation of New York City. Cost of the coke ovens was given by Mr. Kirk president of the company, as $760,000, while the compressor installation will run to approximateiy $19.000.

Old ovens at the plant are being torn down and the site cleared for the new work. Erection of the new battery will begin immediately and is to be completed before the first of the year.

The new ovens will bring the total at the Prospect plant to 120 with a plant capacity of 1,500 tons of coal a day. The company also operates 41 ovens at its Langsdale avenue plant, with a daily capacity of 445 tons of coal, making a combined coal consumption at both plants nearly 2,000 tons daily.

Gas production will reach 358.000.000 cubic feet a month. The new installation Mr. Kirk said, is made necessary by the growth of the city and increasing demands for gas both for domestic and industrial purposes. The company's coke production will run to approximately 1,100 tons daily. This is marketed throughout the Middle West.

During the present year more than nine miles of mains were laid during the first six months.

Gas for Indianola, Ia., Under Consideration

Construction of an 18-mile main at a cost of $80,000 to supply Indianola, Ia., with gas service is being considered by the Des Moines Gas Company, C. A. Leland, Jr., vice president and general manager of the company, announced recently. Survey of the Indianola field is being made now by the gas company and if sufficient number of prospective patrons can be assured there the main extension will be undertaken at once. A special election to grant the franchise would be required but it is believed that this is preliminary and actual construction work can be completed before the end of the fall season.

Gas Holders To Have Airport Markers

Airport markers will soon be placed on top of gas holders in the New Jersey territory served by Public Service Electric and Gas Company. The first of the markers will be attached to the Harrison holder, which has a capacity of 15,000,000 cubic feet and is one of the largest in the world. Other holders to be so marked in the near future are those at Caldwell, Dumont and Somerville.

The markers, whose purpose is to aid aviators in checking their courses and to show the direction and distance of the nearest airport field, will be types approved by the Department of Commerce, and will be designed in chrome yellow.

The marker is to be placed on the Harrison holder will consist of a circle eighty feet in diameter on the inside of which will appear the letter "M" twenty feet high, indicating that the Newark Airport is in the metropolitan class. Outside the circle will be two large signs 172 feet long, spelling "Newark" in letters twenty-eight feet high, which can be read from an altitude of 3,500 feet. An arrow seventy feet long with a large "N" in the center, will point to the true north. Another arrow, fifty feet long, with a large number "2" in front of it, tells the distance and direction of the airport.

Gas Transmission Line Nearing Completion

A gas transmission line connecting the South Bend, Ind., gas plant with the gas system in Rochester, Indiana, is nearing completion by the Northern Indiana Public Service Company.

The purpose of the new line is to adequately take care of the residential and industrial growth of the cities of Plymouth and Rochester and to furnish service to the residents of Argos and rural residents along Uniited States Highway No. 31.

The Northern Indiana Public Service Company last year constructed a gas transmission line from its South Bend plant to Bremen and Nappanee by the way of Lapaz, Indiana.

The length of the new line installed is twenty-five miles.

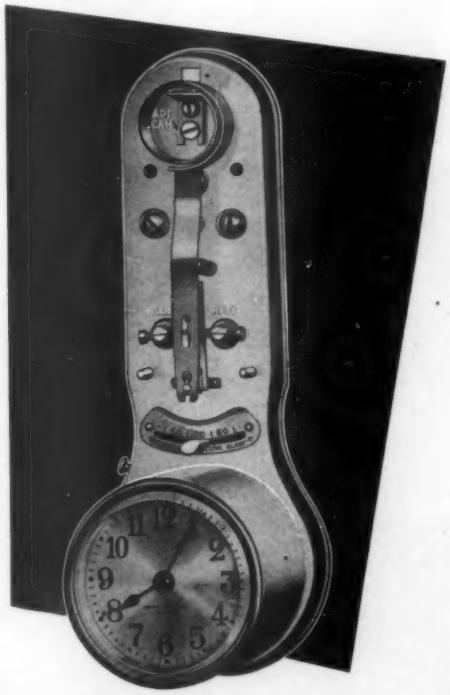
Extensive Improvements Planned

The Macon, Ga., Gas Company is planning to spend approximately $100,000 in expansions and improvements, according to Charles Leach, local manager.

The improvements include the laying of more than 11 miles of gas mains in various residential sections of the city, at a cost of $42,000; improvements at the plant costing $16,000, and improvements at the offices of the company to cost $9,000.

The remainder will be spend on new and improved equipment, trucks, etc.

(News continued on page 82)



The Snap Action Blade
and what it does

RELIABILITY in the room temperature control is essential to the success of any automatic heating system. Any failure of this important unit is sure to result in discomfort and inconvenience for the owner.

The Snap Action blade, an essential and exclusive principle in the Time-O-Stat Temperature Regulator, accounts in large measure for the lasting reliability of these instruments. It is true that the current carried in the circuit is comparatively small, but it is enough to cause miniature arcs if circuit breaking is not accomplished suddenly. Arcs cause burning and pitting of the contact points, and sooner or later, such action will result in sticking or failure to make contact at all.

The Time-O-Stat Snap Action blade operates on the same principle as wall switches carrying the lighting load, motion arising from the thermal element. It makes and breaks with a definite, decisive movement. Burning is reduced practically to zero, with resultant long life for the points and for the satisfaction of the owner.

This is but one outstanding feature which shows the care and long experience which has gone into the design of the Time-O-Stat Temperature Regulator. You can be sure that every part, every movement, has been created to give the maximum in satisfactory service. And, aside from the strictly mechanical design, there is a beauty, a harmony of line, about the instrument as a whole which is entirely in keeping with its excellent mechanism.

Full details about this room temperature control may be had for the asking. Our engineering department will be only too glad to show you how this instrument may be applied to the correct solution of your room temperature control problems.

TIME-O-STAT CONTROLS COMPANY
ELKHART, INDIANA

Owensboro, Ky., Gets Natural Gas

Owensboro, Kentucky, was added to the growing list of cities using natural gas on July 16 when the Missouri-Kansas Pipe Line Company opened service on the lines it laid to the Owensboro city limits from its gas developments 20 miles to the southeast, and hooked up with the Owensboro Gas Company's main. The photo shows the flare of ignited gas when air was forced out of the pipes on the night of inauguration of the service. This unusual photograph was arranged by Russell Hastings, vice-president of Missouri-Kansas Company in charge of Owensboro operations.

No Hazard in Gas Refrigeration

Many inquiries from all sections of the country regarding the misuse of the word "gas" in connection with the recent deaths from mechanical refrigerator fumes in Chicago have prompted officials of the American Gas Association to issue a statement completely exonerating the refrigerator which is operated with manufactured or natural gas.

Telegrams from companies received by Alexander Forward, managing director of the American Gas Association, at New York, state that the misuse of the word "gas" is injurious to the gas refrigerator. Mr. Forward stated here that the gas mentioned in the accounts of the accidental deaths in Chicago referred to "a refrigerating fluid or medium, some kind of which is used in mechanical refrigerators, and not used at all in gas refrigerators."

"No such fatalities would have been possible," says Mr. Forward, "with gas refrigerators."

Big Venture Planned For Natural Gas

The Columbian Carbon Company, the Texas Company, Skelley Oil Company, and the Phillips Petroleum Corporation are backing the idea of constructing a natural gas pipe line from the Texas panhandle to Chicago, Illinois. The gas will be purchased by the Insull interests when it reaches Chicago and marketed.

The Texas Company and the Empire Company are already constructing a 12 inch gas line from the Panhandle to Chicago.

Natural Gas Department Nominations

The Nominating Committee of the Natural Gas Department makes the following nominations to be voted by the Natural Gas Department at its meeting in Atlantic City October 16 next.

For Chairman:
Henry C. Morris, President
Dallas Gas Company,
Dallas, Texas

For Vice Chairman:
H. C. Cooper, Chief Engineer
Hope Natural Gas Company
Pittsburgh, Pa.

For Members of Managing Committee Two Year Term
L. K. Langdon, Cincinnati, Ohio
H. L. Montgomery, Bartlesville, Okla.
J. B. Tonkin, Pittsburgh, Pa.
M. W. Walsh, Louisville, Ky.
Wm. Moeller, Jr., Los Angeles, Calif.
Geo. E. Welker, Oil City, Pa.

For Member Managing Committee One Year to Fill Unexpired Term of H. C. Cooper
J. R. Munce, Pittsburgh, Pa.

(Signed) A. W. Leonard, Chairman
J. D. Creveling
H. J. Hoover
Nominating Committee, Natural Gas Department.

New Gas Company Operating

The Sterling Gas Company of Sterling, Colorado, recently organized, has been voted a franchise by the citizens to serve them with gas. Artificial gas will be supplied and in the event that natural gas is found more economical, the substitution will be made. Just now there has been very little oil or gas found close to Sterling. L. E. Thompson, president, advises that they have laid twelve miles of pipe line and have more than 400 contracts.

American Gas and Power Acquires Additional Property

The American Gas and Power Company, subsidiary of the American Commonwealths Power Corporation has acquired the Industrial Gas Corporation of Birmingham, Alabama. The consideration was about one and one-half million dollars in cash for the entire common stock.

The Indiana Consumers Gas & By-Products Company to Supply Eastern Illinois with Gas

The Indiana Consumers Gas and By-products Company, Terre Haute, Ind., announced the signing of a contract with the Universal Gas Company and the Central Illinois Public Service Company to supply a large portion of eastern Illinois with gas, which will be piped from the Indiana company's Terre Haute plant.

(News continued on page 84)

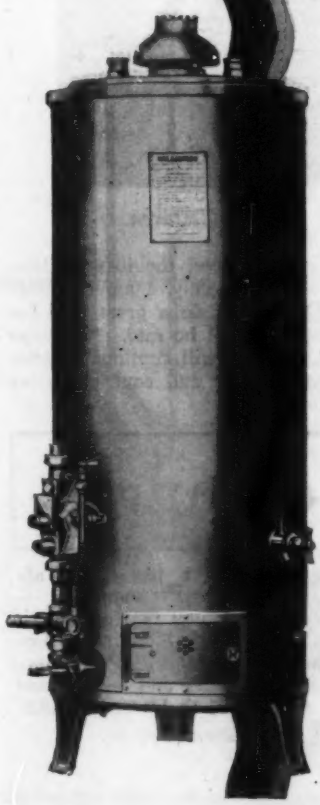
The More Hot Water your customers Use...

The More Gas you can sell them

THOUSANDS of faucets in the homes of your patrons are marked hot, but actually deliver cold water. Think what it would mean to your *gas sales* if those faucets were made to deliver gas heated water, as intended.

An extensive year-round selling campaign on Humphrey Automatic Water Heaters, will bring immediate profit to your appliance department, and mean a *permanent* increase in your gas sales. Let the Humphrey Merchandise Man help you plan your selling campaign.

Your patrons will not buy more gas than they think they can use. But they *will* buy greater comfort and convenience. Sell them the comfort and convenience constant hot water provides, and increased gas sales are bound to follow.



A HUMPHREY *Automatic* WATER HEATER *is the best gas salesman on your force*

It works every hour of the day and night, giving your patrons health and happiness, and selling gas for you

THE HUMPHREY COMPANY
(DIV. RUDD MFG. CO.)
KALAMAZOO, MICHIGAN

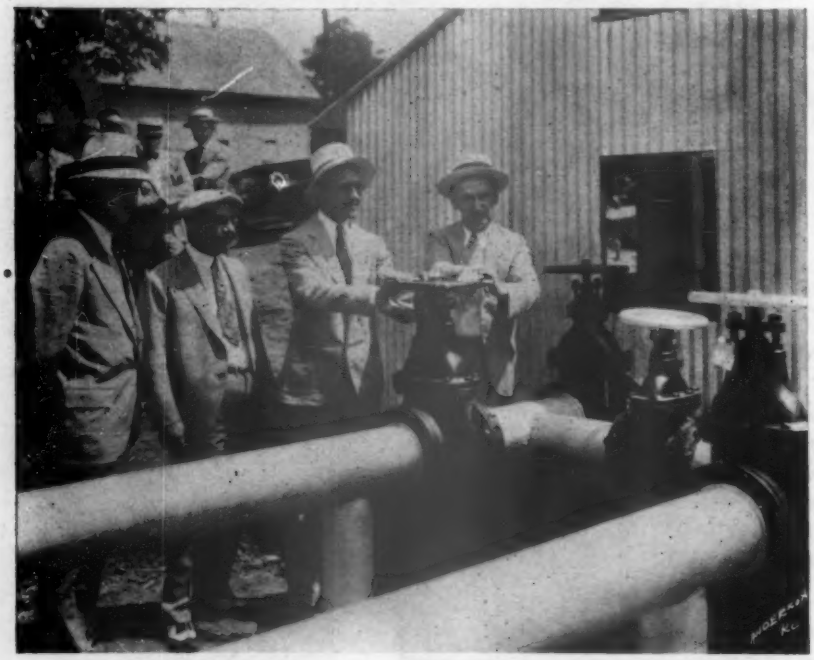
HUMPHREY
KALAMAZOO
AUTOMATIC GAS WATER HEATER

Natural Gas Turned Into the Mains at Independence, Missouri

City officials of Independence and Sugar Creek, Mo., July 26th, turned natural gas into the mains of the Jackson County Light, Heat and Power Company at Independence. The turning of the large valve at the city gate near Sugar Creek, Mo. by Roger T. Sermon, Mayor of Independence and John W. Kelly, Mayor of Sugar Creek, brought the first natu al gas to the city of Independence, and surrounding territory served by this company.

Those in the photograph, eft to right, are L. L. Garner, Manager of the Jackson County Light, Heat and Power Company; Claude P. Brown, President of the Kiwanis Club, Fairmount, Mo.; John W. Kelly, Mayor of Sugar Creek and Roger T. Sermon, Mayor of Independence.

The Gas Company at Independence was purchased by the Gas Service Company, a Doherty concern, which took steps to bring natural gas to Independence shortly after its purchase early in March.



File Articles of Incorporation

Articles of incorporation have been filed with the secretary of state of Indianapolis by the Universal Gas Company of Terre Haute, Ind. The corporation has an initial capital stock of $100,000 and is formed for the purpose of "manufacturing, piping, distributing and selling of artificial or other gas for heat, light, fuel and power." The incorporators are W. B. Gates, J. S. Armstrong and Ernest Knefler.

Construction of Gas Pipe Line Under Way

The 475-mile pipe line under construction from the Monroe-Richland natural gas fields in northern Louisiana to the St. Louis industrial center is approximately 20 per cent. completed, according to an announcement made at the offices of the United Gas company recently. The line which will be the second largest ma n gas line in the country, and will cost approximately $30,000,000, is being laid by the Mississippi River Fuel corporation, a syndicate comprising Standard Oil of New Jersey, United Gas Company, Electric Bond and Share, Columbian Carbon Company and United Carbon Company.

More than 50 miles of the 22-inch line has been laid and back filled, while 168 miles of pipe has been unloaded and is ready for the six construction crews engaged in the work.

It is estimated that the work will be completed about November 1.

50 Year Franchise Granted

At the regular meeting of members of the town board of Salem, Ind., a resolution was passed granting the Interstate Public Service Company a franchise for 50 years for providing gas as a heating and cooking commodity to local residents.

To Get Natural Gas

Russell, Kansas, will get natural gas, the Western Gas Company of Salina, Kansas, having come to an agreement with the city officials on the franchise grant.

Miss Jessie McQueen Appointed A.G.A. Home Service Counsellor

The appointment of Miss Jessie McQueen as home service counsellor for the American Gas Association has been announced by Alexander Forward, managing director of the Association. Miss McQueen, who has been connected with Montana State College for some years, joined the Association headquarters staff in New York on August 1.

Miss McQueen succeeds Miss A. Deane Dowell, who resigned recently. Miss Dowell is Mrs. Robert A. Sovik, of Lynn, Mass., in private life.

Miss McQueen is a graduate of Albert Lea College, at Albert Lea, Minn., and of the College of Agriculture, at St. Paul, Minn. She has also received an A. M., degree from Teacher's College, Columbia University, New York, N. Y., and for the past few years has been foods and nutrition specialist of the Montana Extension Service, Montana State College, Bozeman, Mont.

In announcing the appointment of Miss McQueen, Mr. Forward said that he was sure she would carry on the splendid work which had been inaugurated by Miss Dowell.

Jessie McQueen

"While we will feel the loss of Miss Dowell's services keenly, I am sure that Miss McQueen will do a great deal for home service work," he said. "Through Miss McQueen we will continue to offer home service advice and counsel, as we have in the past."

Personals

C. G. Eichelberger has been appointed Assistant to President H. C. Blackwell of The Union Gas & Electric Company, Cincinnati, O. Mr. Eichelberger has been with the company since April, 1913, as engineer and power sales engineer. From 1925 to December, 1929,

(Continued on page 86)

"Cost Plus"
In the Buying of Valves

Ordinary valves must be estimated on a "cost-plus" basis. The original outlay **plus** the service charges for maintenance.

That charge may be a few cents for a minor part, or it may mean a complete shut-down that shows a loss mounting into the hundreds.

Installing Darling valves **now** will free your operations of the subsequent loss from an inferior product.

Users who have had the opportunity of testing them side by side with other makes testify to Darling's maximum service and minimum upkeep.

Our catalog and diagrams are complete. Ask for one.

DARLING VALVE & MFG. CO.
WILLIAMSPORT, PA.
NEW YORK CHICAGO
OKLAHOMA CITY HOUSTON

DARLING
GATE VALVES

Eichelberger Asst. to President

(Continued from page 84)

he has had charge of gas and electric rates. Prior to coming to the company, Mr. Eichelberger was with the Columbus Railway Power & Light Co. of Columbus, Ohio.

Burt Bay, one of the prominent figures in the natural gas industry, has become vice-president and general manager of the Missouri-Kansas Pipe Line Co., with headquarters in Kansas City, according to announcement by Frank P. Parish, president. Mr. Bay resigned from the general superintendency of the natural gas division of the Empire Gas & Fuel Co. at Bartlesville, Okla., on July 1. His entrance into the business was in 1908 with the Columbus, (O.) Natural Gas Co.

Burt Bay

With the Missouri-Kansas, Mr. Bay will serve chiefly as operating manager in direct charge of the company's interests in Kansas, Missouri and Kentucky, his experience having been confined principally to the production end of the business for more than twenty-one years.

George Crowther has been appointed Personnel Manager of The Union Gas & Electric Company, Cincinnati, Ohio. Mr. Crowther has been with the Company for over eight years.

E. W. Ehmann has been appointed manager of the Main Line Division, Philadelphia Suburban-Counties Gas and Electric Company, with headquarters at Ardmore, Pa., to succeed H. R. Sterrett, who was regional vice-president of the company. Mr. Sterrett resigned to become vice-president and general manager of the New Haven (Conn). Gas Light Company.

Mr. Ehmann entered the employ of the Suburban Company in July, 1924, as superintendent, Electric Department, Schuylkill Division, and since then has held the positions of superintendent and assistant manager of the Main Line Division. Prior to 1924, and since October, 1909, when he first became a U. G. I. System employee, Mr. Ehmann had worked for the Philadelphia Gas Works, Fulton County Gas and Electric Company, Gloversville, N. Y., and the Northern Indiana Gas and Electric Company, Lafayette, Ind., in various engineering positions.

L. H. McCray, former Vice-President and General Manager of the Associated Gas & Electric System at Portsmouth, N. H., has gone to Erie, Pa., where he will assume similar duties in the Northwest Region of the Pennsylvania properties of the Associated System. Mr. McCray has been at Portsmouth for the past four years, since that property was taken over by the Associated. He will be succeeded by Mr. R. C. L. Greer, former General Superintendent, and Mr. F. W. Randall, Commercial Manager, has been appointed Assistant General Manager.

John M. Rusby, engineer of tests, was recently retired. He had completed forty-four years of service with the United Gas Improvement Company, Philadelphia, Pa., and associated companies.

Mr. Rusby, after graduating from Stevens Institute of Technology with the degree of M. E. in 1885 entered U.G.I. employ at Philadelphia. During 1886 and 1887 he was with the Allentown Gas Company, and from 1887 to 1902 he was located at Jersey, N. J., first with the Jersey City Gas Light Company and later with its successor company, the Hudson County Gas Company, when that company was formed to consolidate five companies which served Jersey City, Hoboken and adjacent territory.

In 1902, Mr. Rusby returned to Philadelphia as inspecting engineer of The U.G.I. Company. Shortly thereafter he was assigned to research work for the U. G. I. and later for The U. G. I. Contracting Company, in immediate charge of the Department of Tests. Under his direction that department carried on an important phase of the Company's business, and many of the men in the U. G. I. System today, as well as numerous others who have gone to other companies, received part of their training under him.

Wm. M. Lane, formerly of the New Business Department of the Kansas City Gas Company, and the Jackson County Light, Heat and Power Co. at Independence, has accepted a promotion with the Public Service Company of Colorado at Cheyenne, Wyo. Mr. Lane will do special sales work for the Cheyenne Light, Fuel and Power Co.

C. W. Wallace, General Manager, The Ohio Fuel Gas Company, Toledo, Ohio., was elected to the Board of Governors of the Toledo Rotary Club.

R. J. Daugherty has been appointed director of the information service department of The Empire Companies, Bartlesville, Okla., filling the position left vacant by the resignation of Keith Clevenger. Mr. Clevenger recently resigned to accept a position with the American Gas Association headquarters in New York City.

For the past two years Mr. Daugherty has been employed as public relations representative in the natural gas division of The Empire Companies. He joined the Empire organization in 1926.

O. W. Weaver who has been in charge of the Customer-Ownership department of the Empire will be associated with Mr. Daugherty and will direct the publicity and advertising work of the company.

Paul J. Naschold has been appointed sales manager of the New Haven Gas Light Company, according to an announcement made recently by H. R. Sterrett, vice president and general manager of the gas company. He succeeds A. R. Burr, who becomes the company's superintendent of stores.

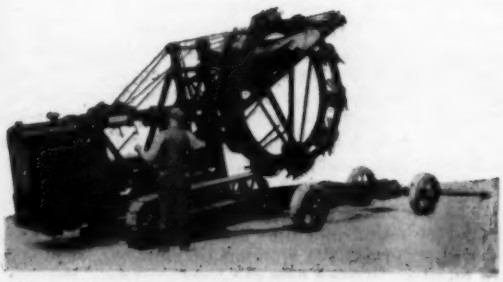
P. J. Naschold

Mr. Naschold, who was born in Boston in 1885, has had broad experience in public utility sales promotion and service work. He comes to New Haven from Philadelphia, where he had been sales supervisor for the Philadelphia Gas Works Company. He began his business career as a member of the sales force of the Philadelphia Company in 1910. Later he was sales manager of the Nashville Gas & Heat Company, Nashville, Tenn., the American Gas Company, Philadelphia and the Rockford Gas Light & Coke Company, Rockford, Illinois.

B. P. Stockwell, formerly manager of the Gas Department of the Oklahoma Utilities Company at Bristow and Drumright, has been promoted to general manager of all gas and electric properties in Oklahoma and Kansas of the Southwest Production Company, Southwest Pipe Line Company, Oklahoma Utilities Company and the Caney Electric Company.

Stockwell for several years was gas and electric engineer of the Oklahoma Corporation Commission.

(Personals continued on page 88)



MORE PRODUCTIVE WORK!

PUBLIC Utility Companies now using the Cleveland Baby Digger have found that one of its big assets to them is its extreme mobility. Loaded on its own specially built trailer the Baby Digger can be moved from location to location at truck speed, whether the distance is one or one-hundred miles. The loading or unloading time is less than five minutes. It can also be loaded quickly and easily onto a truck. Under its own power it travels at three miles per hour.

Another reason why the Baby Digger gives you more productive hours is because its distinctive, compact design makes it usable in more places. With an extreme width of but 58 inches and weighing but 4 tons, it slips easily around or between poles, trees and other obstructions, and works with high efficiency in narrow alleys, parkways or over tree-lawns, thus making available machine digging on practically all of your trench jobs.

Sturdily built and abundantly powered, it carries on through the toughest soils, withstanding the constant shocks and strains of digging and guaranteeing uninterrupted operation over a long period of years.

You will get more productive hours and save more money with the Baby Digger. Write today for full information.

THE CLEVELAND TRENCHER COMPANY

"Pioneers of the Small Trencher"

20100 St. Clair Ave., Cleveland, Ohio

THE BABY DIGGER

George H. Baird, formerly operating engineer for the natural gas division of the Cities Gas Co., Bartlesville, Okla., has been selected to succeed Burt Bay as superintendent of operations of the company, according to an announcement made recently by H. L. Montgomery, manager of the Cities Service Gas Co. Mr. Baird nas had a great amount of experience, having been with the organization since 1916, shortly after his graduation from the Kansas State Agriculture College. During his association with the company he has come in contact with practically every phase of natural gas operations. Mr. Baird is an active member of the Pipe Line Flow Committee of the American Gas Association and is considered an authority on this important activity in the Mid-Continent field.

Ralph A. Bloomsburg was recently appointed Safety Supervisor of the Mohawk Hudson Power Corporation, Albany, N. Y. Mr. Bloomsburg assumed his duties on August 1st and will be located in Albany. His activities will cover the entire Mohawk Hudson territory. As official representative of the Central Accident Prevention Committee, he will supervise safety promotion in all its branches as it applies both to employees and to the public. As an expert in artificial respiration and first aid in general, he will supervise the training of employees in administering first aid treatment in case of accident to fellow workmen or to the public.

Mr. Bloomsburg was formerly Chief Engineer of the Utilities Mutual Insurance Company of New York City. He was also for a time Vice President of the Davis Emergency Equipment Company.

Mr. Bloomsburg is a graduate of Columbia University, with a degree of Electrical Engineer. He is also a graduate of Baltimore Polytechnic Institute, and has studied at Johns Hopkins University.

Obituary

William E. Helme

William E. Helme, Vice President and Treasurer of the American Meter Company, died at his residence in St. Davids, Pa., recently after an illness of several months.

Mr. Helme was long identified Helme & McIlhenny, manufacturers of gas meters in Philadelphia, which was established by his father, Wm. Helme, and John McIlhenny in 1848. Upon the formation of the present American Meter Company he became its treasurer, and continued in this office to his death.

He was well known and highly esteemed in social, financial and business circles in Philadelphia. Mr. Helme was in his 73rd year, and is survived by his wife, one daughter and three granddaughters.

Trade News and Construction

United Engineers & Constructors, Inc., Activities

E. I. Du Pont de Nemours and Company have awarded a contract to furnish, deliver and install at their plant at Belle, West Virginia, three U. G. I. Mechanical Generator Blue Water Gas Sets, Turbo Blower Units, Blast main from Blower Units to sets, and U. G. I. Model "B" 8-Cam Automatic Control Machines, Take off Main, Piping; three U. G. I. Waste Heat Boilers and Scrubber. There will also be provided three U. G. I. Automatic Fuel Chargers, with the necessary Fuel Handling Equipment for delivering the fuel from the overhead bin to the automatic chargers.

The Consumer's Power Company. Lansing, Mich, through Stevens and Wood has contracted for one (1) 10′ 0″ U. G. I. Carburetted Water Gas Set, equipped with Backrun, complete hydraulic operation, and arranged for the use of exhaust steam, and for soft coal operation. The set is to be operated by a U. G. I. Model "B" 7-cam Automatic Control Machine. The necessary operating floor is also included. Additional contracts have been awarded for a Cottrell Electrical Tar Precipitation Plant, having a capacity of approximately 4,000,000 cu. ft. per day and a Smoot Steam Accumulator.

The Harrisburg Gas Company has given authorization to design and construct a service building at Harrisburg, Penna., consisting of a 3-story storeroom building with one story garage, for the use of their Distribution Department.

Combustion Utilities Corporation has ordered a U. G. I. Model "B" 8-cam Automatic Control Machine which will be installed at their Washington, Pa., plant.

The Detroit Edison Company through Semet-Solvay Engineering Corporation, has purchased a U. G. I. Model "B" 7-cam Automatic Control Machine, for the operation of Carburetted Water Gas Apparatus.

The Consumers Power Company, Pontiac, Mich., through Semet-Solvay Engineering Corporation have placed an order for a Model "B" 7-cam Automatic Control Machine, for the operation of its Carburetted Water Gas Apparatus.

The Iowa Railway and Light Corporation has contracted for a Cottrell Electrical Tar Precipitation Plant, having a capacaity of approximately 1,600,000 cu. ft. of gas per day. The success which has attended the Cottrell System for tar extraction in the other plants of the Iowa Railway and Light Corporation resulted in the Cottrell Apparatus being installed at Marshalltown, Iowa.

Philadelphia Suburban-Counties Gas and Electric Company have given authorization to furnish, deliver and install at the West Conshohocken, Pa., Gas Handling Plant, a motor driven compressor unit having a capacity of approximately 350,000 cu. ft. per hour against a pressure of 100 lbs. per sq. inch.

Contract has been awarded by the New York Power and Light Corporation, to furnish, deliver and install approximately 92,500′ of 6″ welded steel gas transmission main between Schenectady and Amsterdam, New York.

Contract has been awarded by the Consumers Gas Company of Reading, Penna., for furnishing, delivering and installing 31,000′ of 12″ welded steel gas transmission main between Mt. Penn and Baumstown, Penna.

Contract has been awarded by the Philadelphia Suburban-Counties Gas and Electric Company to furnish, deliver and install 62,400′ of 6″ welded steel gas transmission main, 30,000′ of 4″ cast iron gas transmission main, and 10,000′ of 2″ welded steel gas transmission main, between the towns of Zeiglersville and East Greenville, Penna.

Contract has been awarded by the Utica Gas and Electric Company, The Syracuse Lighting Company, Inc., and the New York Power and Light Corporation to furnish, deliver and install approximately 153,120′ of 8″ welded steel gas transmission main between Utica and Syracuse, N. Y.

The Philadelphia Gas Works Company has purchased an additional U. G. I. high duty 8-pass condenser, for installation in their Station B. Plant. The operation of the existing condensers of this type which have been furnished by United Engineers & Constructors Inc., have been so successful that additional condensing equipment is added of the U. G. I. High Duty design.

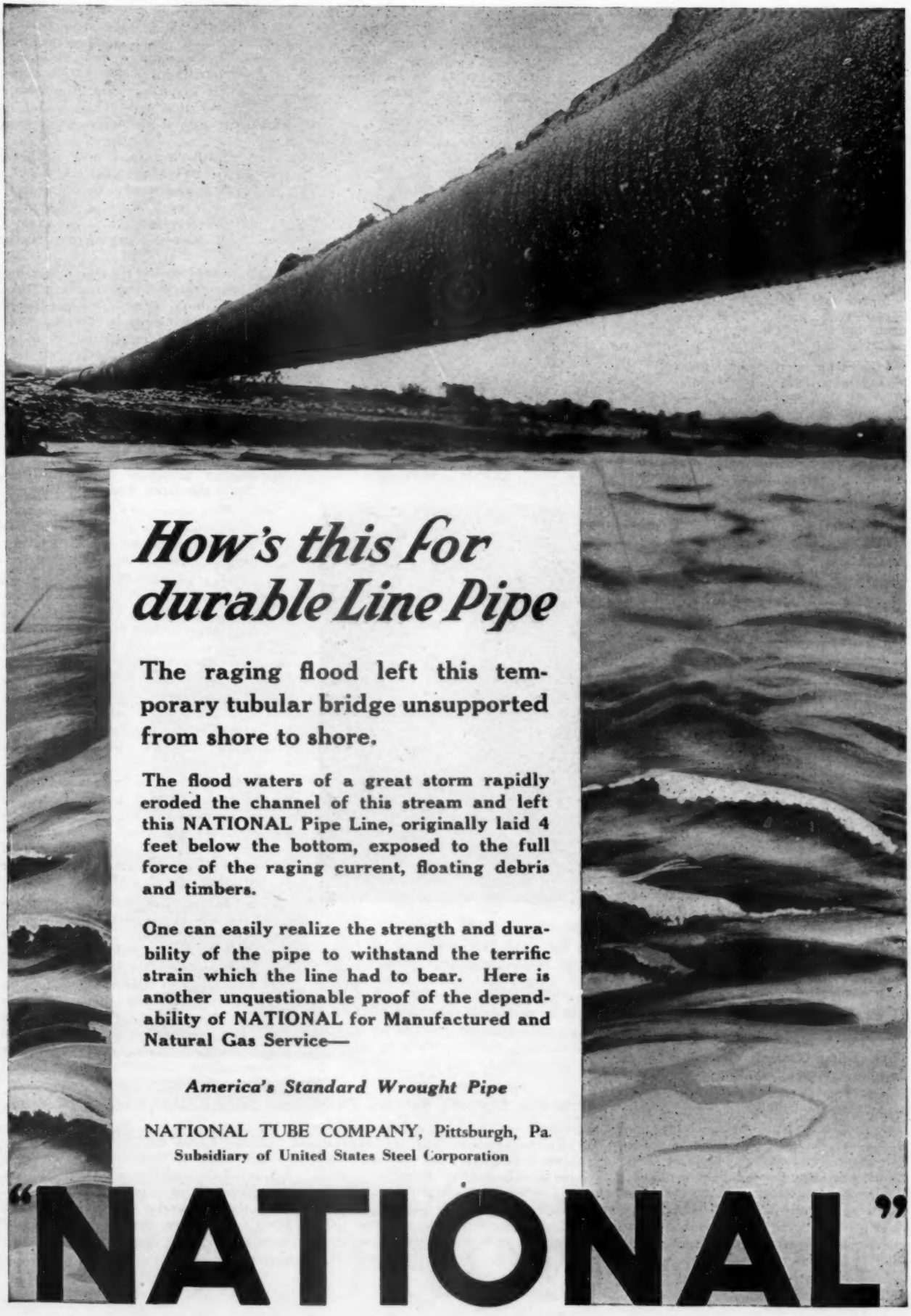
The Connelly Iron Sponge & Governor Company Move Executive Offices

The Connelly Iron Sponge & Governor Co., executive and general offices, formerly at Long Island City, are now located at 200 South Second Street, Elizabeth, N. J.

Electrolux Sales for First Six Months of 1929 Show Large Increase

H. W. Foulds, vice-president in charge of sales, Servel Sales, Inc., distributing organization for Electrolux gas refrigerators, states that sales for the first six months of 1929 were two and half greater than during the same period last year. June, Mr. Foulds added was the best month the company has experienced. A pronounced trend toward gas refrigeration in apartment houses is noticeable in all the bigger cities, Mr. Foulds said.

(Trade News continued on page 90)



How's this for durable Line Pipe

The raging flood left this temporary tubular bridge unsupported from shore to shore.

The flood waters of a great storm rapidly eroded the channel of this stream and left this NATIONAL Pipe Line, originally laid 4 feet below the bottom, exposed to the full force of the raging current, floating debris and timbers.

One can easily realize the strength and durability of the pipe to withstand the terrific strain which the line had to bear. Here is another unquestionable proof of the dependability of NATIONAL for Manufactured and Natural Gas Service—

America's Standard Wrought Pipe

NATIONAL TUBE COMPANY, Pittsburgh, Pa.
Subsidiary of United States Steel Corporation

"NATIONAL"

John C. Diehl Made Chief Engineer of American Meter Company

Announcement has recently been made of the appointment of John C. Diehl to the position of Chief Engineer of American Meter Company.

Since 1919, Mr. Diehl has been Engineer with the Metric Metal Works Division at Erie. In that capacity he has been in charge of the Erie experimental laboratory, specializing in large volume, high pressure measurement. This laboratory has provided important results and its usefulness to the industry has been greatly extended under Mr. Diehl's direction.

As Chief Engineer of American Meter Company, Mr. Diehl will coordinate all experimental activities now being carried on in the several factories. He will also supervise the introduction of technical improvements in products, and promote in general any findings of value to the practical application of measurement engineering.

A frequent contributor of technical articles to Gas and Oil Journals, John C. Diehl is also the author of the revised edition of the Natural Gas Handbook, 1927. He assisted the late H. P. Westcott in the Handbook of Natural Gas, 3rd edition, 1920; Measurement of Gas and Liquids by Orifice Meter, 2nd edition, 1922; Handbook of Casinghead Gas, 3rd edition, 1922.

Elmer J. Werthman Now Agent for Sprague Meter Company

Elmer J. Werthman, formerly Meter Foreman with the Peoples Light Company at Davenport, Iowa, is now acting as Agent for the Sprague Meter Company at their Davenport branch.

Edward M. Lockwood, Jr. who has been in charge of this warehouse is now representing the Sprague Meter Company in their Middlewestern territory.

New Sales Company Formed

The Amherst Coal Company and the Logan County Coal Corporation recently announced the formation of the Amherst-Logan County Coal Corporation, 1701 Kanawha Valley Building, Charleston, West Virginia, as exclusive distributor of their entire producton.

R. J. Stegall and F. H. Riggs, formerly in charge of sales of Amherst Coal Company and Logan County Coal Corporation, will respectively assume the duties of treasurer and sales manager of the new sales company.

Time-O-Stat Controls Company Opens New York Office

The Time-O-Stat Controls Company, manufacturers of a complete line of automatic controls, with general offices and factory at Elkhart, has recently opened New York Sales offices at 11 West Forty-second Street, in the Salmon Tower Building. This office will be the headquarters for all Eastern salesmen contacting Eastern and Atlantic Coast States manufacturers. A large organization of sales engineers and service men will operate from the New York office as well as from the Chicago Sales office and will contact, aid and assist manufacturers who are interested in, automatic controls.

Mr. Carl W. Scholle will be in charge of these offices and will act as contact man throughout the Eastern part of the country, representing the new company. Mr. Scholle has long been identified and is thoroughly familiar with merchandising and sales problems in the Eastern and Atlantic Coast States.

Net sales of the Time-O-Stat Controls Co., for the six months ending June 30, were $724,142 or more than 66 per cent greater than in the same period of 1928 when sales totaled $433,994, Julius K. Luthe, president, announced recently. Net sales of the company for the first twenty-three days of July were $220,000 whereas in June, this year they amounted to $254,448.

Thos. W. Stone New Vice President Western Gas Construction Company

At a recent meeting of the Board Thos. W. Stone was elected a Vice President of the Western Gas Construction Company of Fort Wayne, Indiana.

T. W. Stone

Mr. Stone graduated from the Ohio State University in the class of 1902, entered the employ of the Western Gas in June of the same year, and has served during the ensuing 27 years in the capacity of draftsman, superintendent of erection, assistant engineer and chief engineer.

Pittsburgh Equitable Enlarges Plant

With the letting of building contracts recently, announcement of an important expansion program was made by the Pittsburgh Equitable Meter Company, manufacturers of gas, water, oil and gasoline meters and gas pressure regulators. The first step in the plans of the company will be the erection of a new building to adjoin the present Equitable plant.

Nearly all of the projected new building will be used for the expansion of EMCO tin meter manufacturing facilities.

The first tin meter made by this company was produced in 1893 by the Pittsburgh Meter Company. The manufacturing plant at that time was located in East Pittsburgh where it remained until 1924.

The greatly increased sales made it necessary to seek larger quarters, and the entire plant was moved to Pittsburgh. The new five-story building with modern manufacturing equipment and greater floor space seemed adequate until early in 1928.

Their return to the tin meter field has made it necessary to again enlarge production facilities. The tin meter shops have now been moved to the Equitable division where the most modern manufacturing equipment and every convenience for the employees have been installed. No expense has been spared in making this new tin meter shop the finest of its kind.

The Fisher Governor Company Purchase the Apex Regulator Co.

The Fisher Governor Company of Marshalltown, Iowa, recently announced that they had purchased the Apex Regulator Company of Decatur, Illinois.

The Apex products are closely allied with those of the purchasing company, which manufactures a complete line of automatic pressure control specialties for steam, water, air, and the oil and gas industry. However, the Apex line has, previous to this time, consisted of smaller valves for less diversified fields, and it is planned to continue to specialize on smaller valves for plumbing, refrigerating machines, oil burners, and similar equipment.

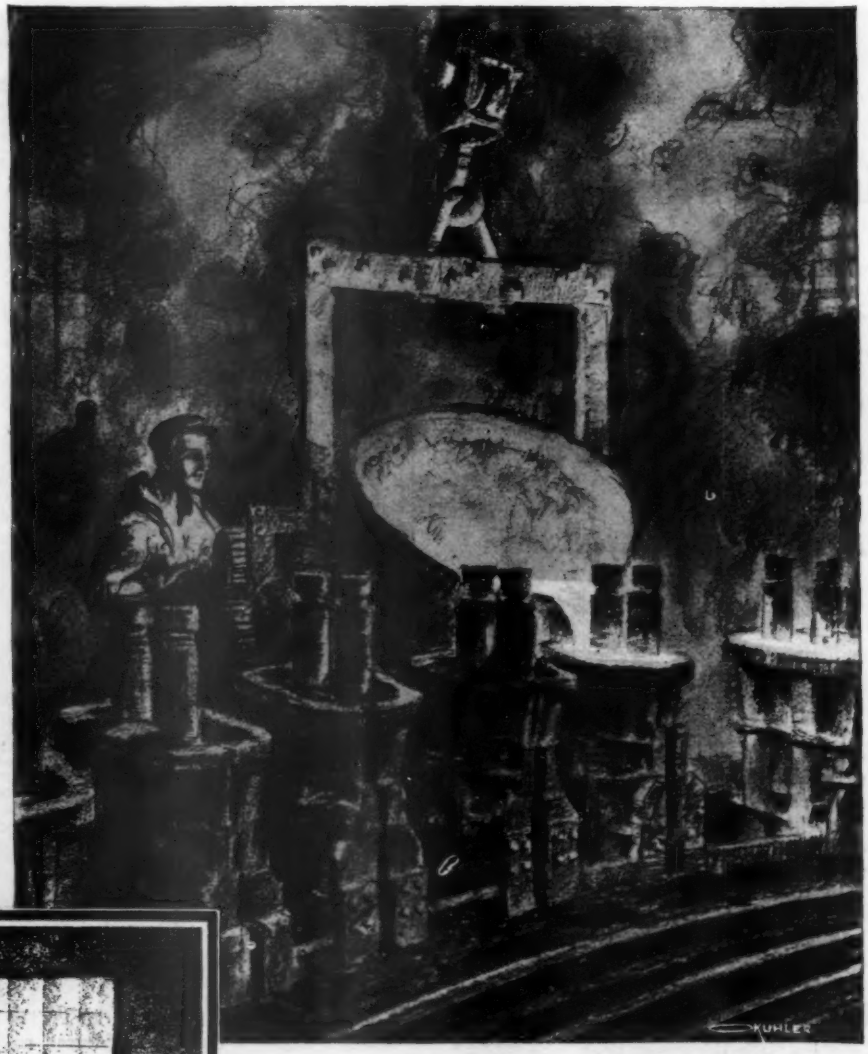
Mr. A. W. Cash, inventor and founder of the Apex Company, has contracted to act as engineer and have general supervision of the new plant. The wide experience of Mr. Cash makes him one of the outstanding valve designing engineers in this country.

All of the plant equipment of the Apex Company will be moved to Marshalltown where it will be located four blocks from the Fisher factory and general offices. No announcement has been made in regard to the date of opening the new plant.

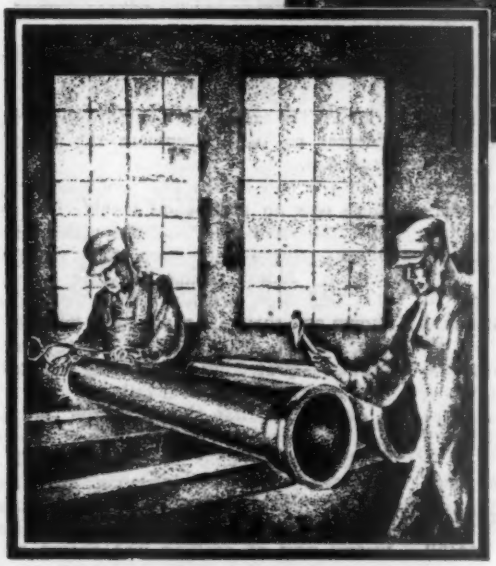
The Fisher Governor Company will operate the Apex Regulator Company as an entirely separate unit, but their products will be handled by the established Fisher representatives throughout the United States and foreign countries.

San Diego To Get Natural Gas

The Southern Counties Gas Company has asked the California Corporation for permission to lay a natural gas pipe line from the Huntington Beach field to San Diego. A system capable of handling 50 million cubic feet of natural gas daily is planned.



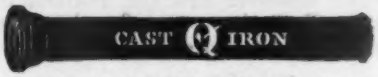
The illustration below shows a length of Cast Iron Pipe being checked for accurate size and hammer tested by plant inspectors.



CENTURIES of time have definitely proved the durability of cast iron pipe. Cast iron pipe in use today has seen thrones topple and monarchs pass away—has watched the advance of civilization from mediæval times. This modern day's pipe requirements ask no surer guarantee of great longevity than that which cast iron pipe offers. Today in our modern foundries, the science of the metallurgist and the machines of the engineer are assuring the uniform high quality of every length of cast iron pipe. Furthermore, science and invention have vastly improved types of joints and fittings to enable cast iron pipe to serve with utmost efficiency.

* * *

The Cast Iron Pipe Research Association is a service organization of leading pipe founders, formed to promote the scientific improvement and proper use of Cast Iron Pipe. Pipe bearing the Association "Q-check" mark may be obtained from the following: American Cast Iron Pipe Co., Birmingham, Ala.; James B. Clow & Sons, 219 N. Talman Ave., Chicago, Ill.; Donaldson Iron Company, Emaus, Pa.; Glamorgan Pipe and Foundry Co., Lynchburg, Va.; Lynchburg Foundry Company, Lynchburg, Va.; National Cast Iron Pipe Company, Birmingham, Ala.; United States Pipe & Foundry Company, Burlington, N. J.; Warren Foundry and Pipe Company, 11 Broadway, New York City.



The "Q-check" symbol shown above has been adopted as the trade mark of The Cast Iron Pipe Research Association. Insist on this "Q-check" mark when specifying cast iron pipe for gas, water, sewer or industrial service.

For complete information write to The Cast Iron Pipe Research Association, Thomas F. Wolfe, Research Engineer, Peoples Gas Building, Chicago.

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CAST IRON PIPE

Berlin's Gas and Water Exhibition

Its wide and detailed scope offered splendid opportunity to study German gas development

By Gerhard Hirschfeld

A Symphony in Gas Pipes
Courtesy, German Tourist Information Office

THE German Gas and Water Exhibition which opened early in April and closed at the end of July was not the first gas exhibition in Germany. About fifteen years ago a similar exhibition was held in Munich; however, in this latter case it was the gas industry alone which stood behind the project. In the meantime the two industries, gas and water, have combined their efforts in order to develop both departments of the public service into the present high state of perfection and this year the exhibition was the first of its kind ever held in Germany.

The exhibition took place at the "Exhibition Buildings" on the Kaiserdamm and was housed in four spacious halls. The largest, with a space of over 177,000 square feet, was dedicated to gas production, another, with a space of about 135,000 square feet, featured the practical use of gas in the household, shop and industry. The two remaining halls dealt with water and its relation to gas.

Gas Works Model, Feature Item

The feature item of the whole exhibition was displayed in the Gas Production hall. Here the largest model of a gas works ever constructed, covering not less than 10,764 square feet of floor space with a daily production capacity of 5,300,000 cubic feet of gas, was shown in one tenth of its natural size. This model was so large as to really surpass the dimensions of what one is inclined to consider a model. Here the whole process of gas production was depicted. Ships and trains were shown carrying the coal to the cranes, which unload it as well as belt-conveyors for transporting the coal to the crushing works and further to the ovens. Working models, machines and apparatus showed every single detail in a very clear and instructive manner and by walking through this model, one might fancy himself in a large plant. A graphic illustration in similarly large dimensions explained in a technical way the production of gas as well as the numerous by-products and formed the conclusion of this feature.

From here the visitor passed on to where full-size machines, apparatus and other structures stood. Towers of refractory brick, the latest models of ovens, gasometers and gas refining apparatus and all sorts of machines and appliances for testing the quality of manufactured gas were shown.

In order to give an idea of the scope of the technical and scientific work involved, it might be mentioned that 250 car loads of brick were required for all these constructions, the foundations of which extended sometimes 15 or more feet below the floor of the hall. The exhibition in this hall was supplemented by illustrations, prints and graphic reproductions relating to the training of the workmen and employes as well as to the sanitary and social accommodations and arrangements within the plants.

The by-product exhibit was interestingly arranged and included coke and tar, sulphate of ammonia, benzol, dye-stuffs, solutions, perfumes and medicinal preparations. This exhibit also employed moving pictures to further explain the various processes.

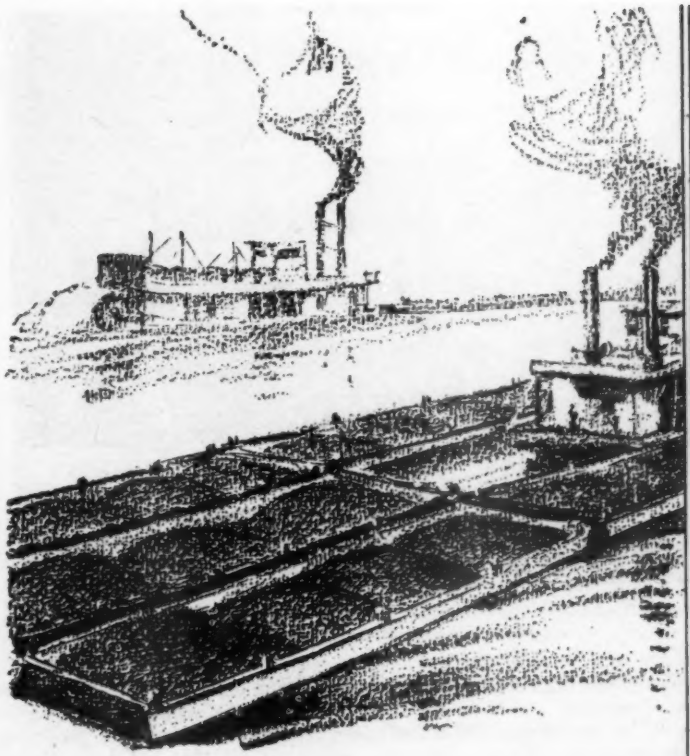
At the end of the gas production hall there was an interesting display of cast iron and steel pipes and the distribution of gas over a wide area was fully explained. House piping, pressure regulators and high pressure pipes were also shown and their use made clear by means of drawings, designs, etc. The ways and means of protecting the pipes against corrosion were shown in detail.

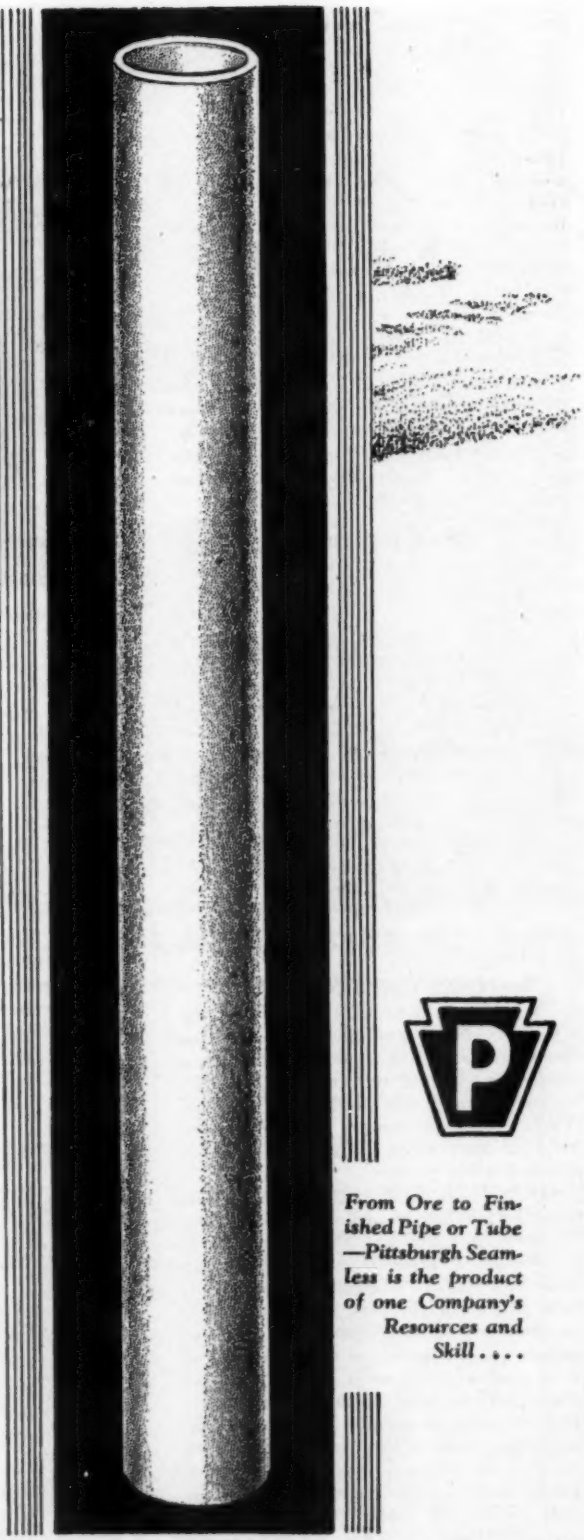
There was first shown in the utilization hall what can be done with one cubic meter (35.314 cubic feet) of gas and a gigantic frieze explained the manifold use of gas, as it has accompanied man throughout his life. The right and the wrong way of cooking was shown and numerous cuts and diagrams illustrated the various ovens, fire places, etc.

Utilization Exhibits

Of particular interest and beautifully displayed was the use of gas in shops, industrial plants and factories, which in various instances was depicted by means of working models. There was among others the model of a bakery and confectionery, a glass factory and works for the manufacture of technical as well as

(Continued on page 94)





First the ORE *and then* FUEL!

Selected ore from company mines—the first step—*then the fuel*—just the right fuel and an unfailing source of supply, assured by company owned mines, coke plants and transportation facilities—that's the second important step in the perfection of Pittsburgh Seamless.

Twenty-five years devoted exclusively to the development and manufacture of *seamless pipe and tubing*, together with the facilities covering every step in the manufacturing process, from the ore in the ground to the pipe in shipment—these are the factors that enable us to *assure* perfection in Pittsburgh Seamless Tubular Products.

Pittsburgh Steel Products Co.

DIVISION OF Pittsburgh Steel Co.

Pittsburgh New York Chicago Detroit St. Louis Houston Tulsa

Pittsburgh Seamless

Largest Manufacturers of Seamless Steel Pipe and Tubing Exclusively

2905

From Ore to Finished Pipe or Tube —Pittsburgh Seamless is the product of one Company's Resources and Skill . . . .

Casing
Oil Well Tubing
Drill Pipe
Line Pipe

Sizes ½" to 14" O.D., *Lengths up to 45 feet*, depending on Size and Wall Thickness.

Berlin Exhibition

(Continued from page 92)

art-glass, a ceramic shop, a foundry, a plumber shop, etc. A model laundry combined with a department for ironing and pleating, a tailor's shop, a printing office and many other technical and commercial enterprises were shown in their respective relation to the gas industry. In view of the fact that the illumination of the streets in Germany is still largely accomplished by gas, this department displayed a wide representation of different systems and models for house, street and factory lighting.

In the Gas Production Hall was shown pressure regulator for keeping the pressure of the gas mixture constant with only one regulator. In one booth a technical novelty consisted of a three-phase motor with short circuit device for use in connection with a gas compressor. On account of the lack of all contacts, which could produce sparks, the use of these motors in gas filled places is, of course, facilitated.

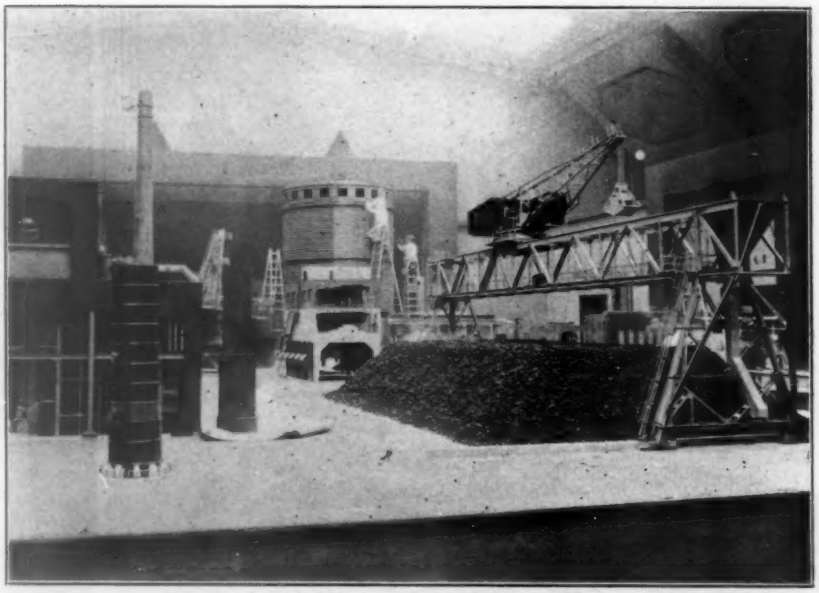
A Berlin company displayed a plastic covering which is manufactured according to a new process and which protects pipes and cables against chemical and electrolytic corrosion. This new covering, which has been on the market for only two years, seems to promise a very definite improvement as regards the isolating of the pipes, inasmuch as it rejects humidity, is not attacked by acids, and possesses a complete impenetrability against gases of all kinds. It is said, that the theoretical, scientific as well as practical try-outs have given a very satisfactory result.

Interesting Coal Pocket Model

The GAS & WASSERWERKE of the City of Cologne exhibited an interesting model of a closed coal pocket with a length of 885 feet and a width of 138 feet, and a capacity for 40,000 tons of coal. There was also shown a newly constructed interruptor for stray currents in gas and water pipes.

HEINRICH KOPPERS, Inc., Essen, gave a complete picture of the constructions of coke and gas plants particularly of fire-proof material. The production and the use of "sillimanit" material is new and its application especially in the gas industry is wide-spread. Many consumers of gas were, no doubt, interested in a gasmeter, the walls of which are of glass. This new gasmeter permits a close-up view of the construction and the working system of this apparatus. A new type of automatic temperature regulator, which automatically controls the flow of gas, so that the temperature is kept constantly at the desired rate with the greatest precision was of interest.

One company brought out a novelty in protection against rust and corrosion through the product "Imunol", a paint, which does not dry. Another exhibited an interesting model of a new water gas generator with automatic coke scale as well as automatic coke filling machine and an automatic ash remover. Remarkable and of actual interest as regards the seamless pipes were the exhibits of pipe, which are to be used especially in long-distance transmission. There was also shown a bituminous protection against rust with the use of woollen felt.



Courtesy, German Tourist Information Office

Giant Model of a Modern Gas Plant

The Economic Association of German Gas Plants, Berlin, has produced, and probably for the first time in Europe, a sound moving picture for advertising gas coke. The Association has erected a special hall for this. In the form of a comedy the public is shown in a very unobtrusive way the production of gas coke and, of course, the people are not bothered with many technical details. The picture, however, has produced very satisfactory results and has found widespread acclaim as well as very favorable comment among the visitors of the exhibition and even in the daily press.

These are some of the new things, as they were shown at the German Gas and Water Exhibition. It would of course go far beyond the scope of the present article, if it were attempted to give even an outline of all that has been shown and offered on occasion of this exhibition. However, it seems sure that the exhibition gave abundant proof of the high state of perfection, which has been reached by the German gas industry in general. It showed to the public, how vast the consumption of gas is and in what excellent condition the German gas industry finds itself. As to the consumption of gas it might here be added that the German railroads alone use every year not less than 1.5 billion cubic feet, which is about equivalent to the total consumption of a city like Essen on the Ruhr with some half million population.

In this exhibition German science and engineering cooperated without a single exception and the results have shown a postitively tremendous achievement.

Michigan Gas Association Holds Annual Meeting

THE annual Meeting of the Michigan Gas Association at Mackinac Island, July 1-3, was well attended and the papers and addresses were instructive and valuable. The electric men of the state met at the same time and a portion of the convention was devoted to a joint session.

Speakers at the joint session were Mrs. Siegel W. Judd, Grand Rapids, president of the Michigan League of Women Voters; W. J. Hagenah, Chicago, vice president of Byllesby Engineering and Management corporation; Oscar H. Fogg, New York, president of the American Gas association; A. C. Marshall, Detroit, vice president and general manager of The Detroit Edison company; and Arthur W. Stace, Ann Arbor, director of the Michigan Committee on Public Utility Information. Mr. Hagenah, speaking upon "Public Utility Regulation and Its Accomplishments," said that regulation of utilities by commissions has successfully met

(Continued on page 96)

Save Your Money
Save Your Legs
Save Your Temper
Save Your Profits
Save Your Pride

This you do when if you have Steam you

"HOOK 'ER TO THE BILER"

Here's how if you care to read:

Save Money.—There are no monthly repair or inspection bills with Ridgway Elevators. They are so simple. Never touched from year's end to year's end.

Save Your Legs.—The Ridgway Elevator never breaks down or drops because it can never be overloaded. When load is greater than area of cylinder multiplied by steam pressure it don't go.

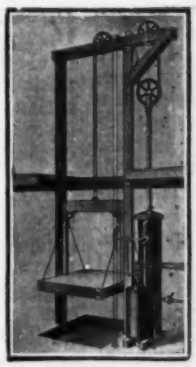
Save Your Temper.—Nobody is made mad because the Ridgway Elevator don't go. The only thing that stops a Ridgway is the boiler blowing up.

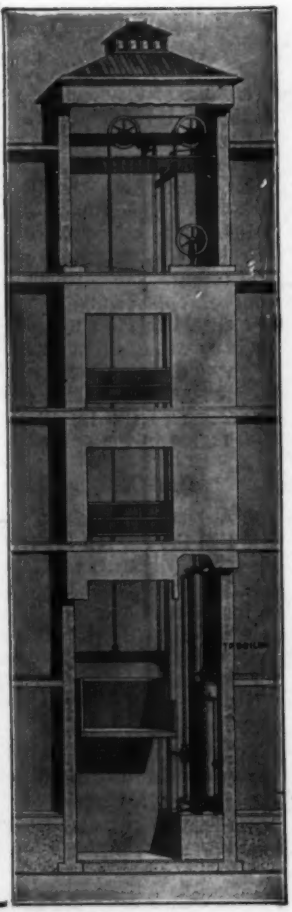
Save Your Profits.—Interruption of work through the plant by elevator failure costs more than most owners suspect.

Save Your Pride.—It stings a real man to find he has bet on the wrong horse. You bet on the wrong horse when you have steam and do not

"HOOK 'ER TO THE BILER"

Direct Acting





Craig Ridgway & Son Co.

Over 3,000 in daily use COATESVILLE, PA.

SUPERIOR

Gas Meters
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Service Cleaners
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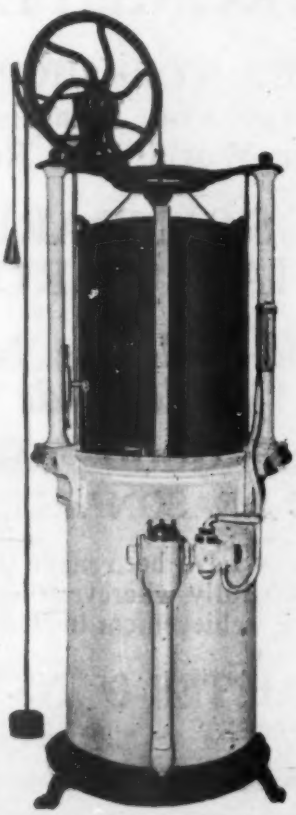


SUPERIOR METER CO.

167-41st Street
Brooklyn, N. Y.

Michigan Gas Assn. Meeting

(Continued from page 94)

every test of the soundness of its policies. Both the utilities and the public would suffer, he declared, if the influence which the commissions exercise were removed.

Mr. Stace, whose subject was "Public Relations and Public Opinion," said, "Michigan's manufactured power and Michigan's manufactured gas have proved real resources to Michigan in Michigan's hour of opportunity. They have helped to make Michigan sixth in population and sixth in wealth. They have kept abreast or ahead of the galloping needs of industrial expansion as Michigan has earned distinction as the fastest growing industrial region in the entire world."

Gas Outlook Favorable

F. A. Newton, in his president's address, said that the outlook for expansion of the gas industry is most favorable. He called attention to the fact that the gas utilities in the Great Lakes region experienced a gain in sales of 8.1 percent during 1928 over 1927, or twice the average increase for the country, and that Michigan leads this group with an increase of 11.3 percent.

In house heating especially, Mr. Newton said, "the amount of gas now sold annually by Michigan gas utilities for house heating purposes is as great as the total normally consumed for domestic and industrial purposes in a city of 75,000 population."

In the expansion of gas systems to serve many of the smaller cities and towns, President Newton said that Michigan is not behind any other state. "Hundreds of miles of mains, and thousands of services have been installed connecting the manufacturing plants in larger centers with the surrounding communities. Plans now under consideration will, when carried out, take gas service to a very large population now without that service."

In presenting the report of the committee on gas house heating, F. J. Woolfenden, Detroit, chairman, predicted that in five years the use of gas for house heating would quadruple, and that almost two and one-half billion cubic feet of gas would be used for house heating in Michigan by 1934.

Assistant Professor E. S. Pettyjohn, Department of Engineering Research, University of Michigan, presented a technical paper giving results of research work sponsored by the Michigan Gas association which has been in progress for a year and a half, regarding the behavior of bituminous coals in the water gas generator.

J. A. Brown, Jackson, chairman of the technical and fellowship committee, announced the appointment of Stuart McLain to the association's fellowship in gas engineering at the University of Michigan. Commenting upon results of research work conducted at the University in cooperation with the association, Mr. Brown said:

"With our business growing at its present rate, the problems before us have never been as numerous as now. The necessity for increasing the efficiency of our processes and methods was never so pressing. More exact scientific knowledge is more essential today than ever before; for it is this knowledge that leads to further attainments."

High Pressure Sales

B. G. Campbell, Pontiac, chairman of the committee on suburban sales and extensions, reported that the sales of gas to communities served through high pressure pipe lines in 1928 were 982 million cubic feet, exclusive of sales in suburban Detroit territory. For the present year, he estimated one billion cubic feet of gas would be used in suburban communities of the state, exclusive of the Detroit areas. Practically 36,000 customers in such communities were served at the first of this year, and the committee expects that by 1930 the number will be increased to 40,000.

J. E. Spindle, Grand Rapids, presented a paper upon the experimental gas dehydration plant at Grand Rapids. Some difficulties were encountered in the mains becoming too dry, after the plant had been in operation for a time. Mr. Spindle said, but these were overcome by spraying oil into the gas.

BAROMETERS

PHILADELPHIA, THE WORKSHOP OF THE WORLD, has 14,000 Manufacturing Establishments of which many have World-Wide Reputations.

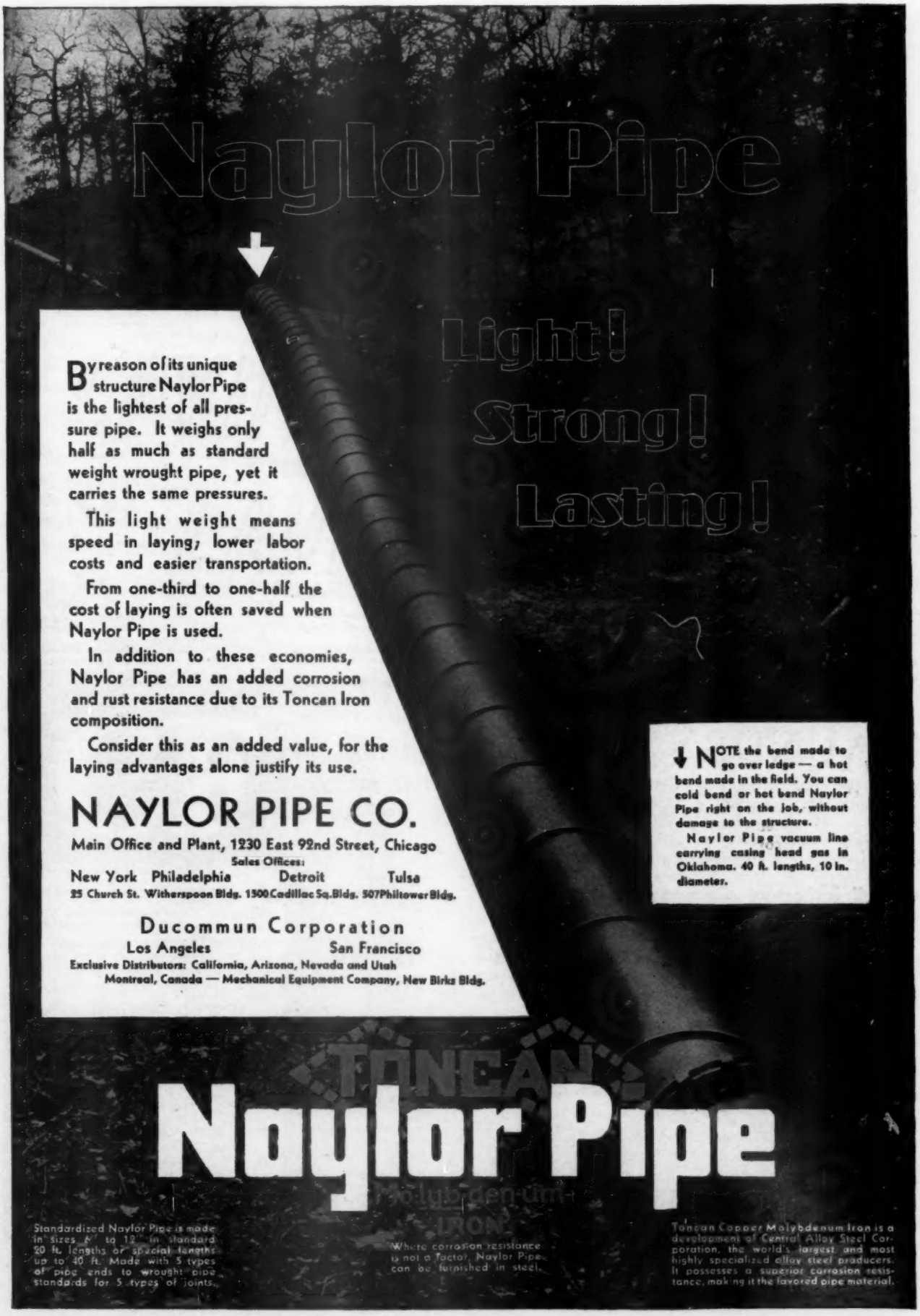
"PRINCO" STANDARD FORTIN MERCURIAL BAROMETERS

are in World-Wide use because they, too, have a "World-Wide Reputation"

THEY ARE GOOD BAROMETERS
THEY ARE REASONABLE IN PRICE!

For more than a decade they have been made in such manner that they can be shipped safely and successfully wherever there is a common carrier. This has been recognized as an achievement in Barometry.

PRECISION THERMOMETER & INSTRUMENT COMPANY
1439 BRANDYWINE STREET - - - - - PHILADELPHIA, PA.


Naylor Pipe
Light!
Strong!
Lasting!
By reason of its unique structure Naylor Pipe is the lightest of all pressure pipe. It weighs only half as much as standard weight wrought pipe, yet it carries the same pressures.
This light weight means speed in laying; lower labor costs and easier transportation.
From one-third to one-half the cost of laying is often saved when Naylor Pipe is used.
In addition to these economies, Naylor Pipe has an added corrosion and rust resistance due to its Toncan Iron composition.
Consider this as an added value, for the laying advantages alone justify its use.
NAYLOR PIPE CO.
Main Office and Plant, 1230 East 92nd Street, Chicago
Sales Offices:
New York 25 Church St.
Philadelphia Witherspoon Bldg.
Detroit 1500 Cadillac Sq. Bldg.
Tulsa 507 Philtower Bldg.
Ducommun Corporation
Los Angeles
San Francisco
Exclusive Distributors: California, Arizona, Nevada and Utah
Montreal, Canada — Mechanical Equipment Company, New Birks Bldg.
NOTE the bend made to go over ledge — a hot bend made in the field. You can cold bend or hot bend Naylor Pipe right on the job, without damage to the structure.
Naylor Pipe vacuum line carrying casing head gas in Oklahoma. 40 ft. lengths, 10 in. diameter.
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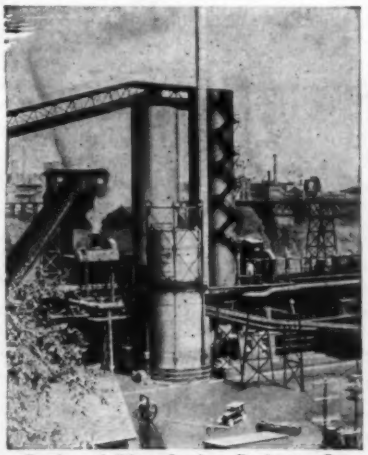

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Prepayment
American Meter Co.
John J. Griffin & Company.
Maryland Meter Works.
D. McDonald & Company.
Metric Metal Works.
The Sprague Meter Co.
Superior Meter Co.
Nathaniel Tufts Meter Works.
Proportional
The P. H. & F. M. Roots Company.
Station
American Meter Co.
Connersville Blower Co., The
John J. Griffin & Company.
Maryland Meter Works.
D. McDonald & Co.
Metric Metal Works.
The P. H. & F. M. Roots Company.
Nathaniel Tufts Meter Works.
The Western Gas Construction Company.
Steam
American Meter Co.
The Gas Machinery Co.
United Engineers & Constructors, Inc.
The Western Gas Construction Company
Test
American Meter Co.
John J. Griffin & Company.
Maryland Meter Works.
D. McDonald & Company.
Metric Metal Works.
The Sprague Meter Co.
Superior Meter Co.
Nathaniel Tufts Meter Works.
Wet Test
American Meter Co.

METER LEATHER
Besse, Osborn and Odell, Inc.

MILLER GRIP PACKING
Connelly Iron Sponge & Governor Co.

MIXERS, GAS
Roberts Gas Burner Corp.
Semet-Solvay Engineering Corp.
Smoot Engineering Corp.

MOISTURE DETERMINATORS
United Engineers & Constructors, Inc.

MOTOR CARS
C. W. Hunt Co., Inc.

NAPHTHALENE EXTRACTORS
Bartlett-Hayward Co.
The Gas Machinery Co.
Semet-Solvay Engineering Corp.
The Western Gas Construction Company.

OFFICE FURNITURE
Remington Rand, Inc.

ORE, CHROME
P. T. Lavino & Co.

OVENS (REEL TYPE BAKE)
The Bruce McDonald Co.

OVENS—COKE AND GAS
Indugas, Inc.
The Gas Machinery Co.
Semet-Solvay Engineering Corp.
The Stacey Mfg. Co.

OXIDE
Alpha-Lux Company.
Connelly Iron Sponge & Governor Co.
Gas Purifying Materials Co., Inc.
E. J. Lavino & Co.

OXYGEN
Linde Air Products Co.

OXYGEN AND HYDROGEN METERS
Lambert Meter Co.

PACKING
Asbestos
Safety Gas Main Stopper Co.

PAINTS
Cheesman-Elliott Co.
Safety Gas Main Stopper Co.
The Stacey Mfg. Co.
Wailes Dove-Hermiston Corp.
Metal Protective
Semet-Solvay Co.

PAINTS, ANTI ACID AND ALKALI
Cheesman-Elliott Co.
Quigley Furnace Spec. Co., Inc.

PAINTS, RUSTPROOF
Cheesman-Elliott Co.
Quigley Furnace Spec. Co., Inc.

PHOTOMETERS
Connelly Iron Sponge & Governor Co.

PILOTS-SAFETY
Time-O-Stat Controls Co.

PIPE
Waylow Pipe Co.
Hedges-Walsh-Weidner Co.
National Tube Co.
The Stacey Mfg. Co.
Bell
American Meter Co.
Semet-Solvay Engineering Corp.
McWane Cast Iron Pipe Co.
Bell and Spigot
U. S. Cast Iron Pipe & Foundry Co.
Cast Iron
McWane Cast Iron Pipe Co.
U. S. Cast Iron Pipe & Foundry Co.
Flange
Semet-Solvay Engineering Corp.
U. S. Cast Iron Pipe & Foundry Co.
Screw Joint Cast Iron Pipe
McWane Cast Iron Pipe Co.
Seamless Steel
Pittsburgh Steel Products Co.
Spigot
McWane Cast Iron Pipe Co.
Semet-Solvay Engineering Corp.
A. O. Smith Corp.
Naylor Pipe Co.
Steel
Bartlett-Hayward Co.
Cruse-Kemper Co.
The Gas Machinery Co.
National Tube Co.
Pittsburgh Steel Products Co.
Riter-Conley Company.
Semet-Solvay Engineering Corp.
A. O. Smith Corp.
Spiral Welded Pipe
Naylor Pipe Co.
Welded Steel
Bartlett-Hayward Co.
Cruse-Kemper Co.
The Gas Machinery Co.
National Tube Co.
Riter-Conley Company.
Semet-Solvay Engineering Corp.
A. O. Smith Corp.

PIPE COATINGS
Wailes Dove-Hermiston Corp.

PLANTS—GAS, COMPLETE
The Gas Machinery Co.
Improved Equipment-Russell Engineering Corp.
The Koppers Construction Co.
Stacey Bros. Gas Const. Co.
The Stacey Mfg. Co.
United Engineers & Constructors, Inc.
West Gas Improvement Co.
The Western Gas Construction Company.

PLATES
Cruse-Kemper Co.
C. W. Hunt Co., Inc.
The Stacey Mfg. Co.
The Western Gas Construction Company.
Floor
Gas Engineering Co.
The Gas Machinery Co.
Riter-Conley Company.
United Engineers & Constructors, Inc.

PLUGS, SERVICE AND MAIN
Rubber
Safety Gas Main Stopper Co.
Soft Wood
Safety Gas Main Stopper Co.

PORTABLE TEST METERS
Lambert Meter Co.

PRODUCER GAS PLANT
Gas Engineering Co.
The Koppers Construction Co.
Semet-Solvay Engineering Corp.
The Stacey Mfg. Co.
United Engineers & Constructors, Inc.
The Western Gas Construction Company.

PRODUCER GAS STEAM
American Meter Co.

PROVERS—Critical Flow for H. P
Field Testing
American Meter Co.

PROVERS—METER
John J. Griffin & Company.
Helme & McIlhenny.
Lambert Meter Co.
D. McDonald & Co.
Pittsburgh Equitable Meter Co
Superior Meter Co.

PUMPS
Drip
American Meter Co.
The Gas Machinery Co.
Lambert Meter Co.
D. McDonald & Co.
Gas
The P. H. & F. M. Roots Company.
Gas Bag
Safety Gas Main Stopper Co.
Hand
Lambert Meter Co.
Oil
Connersville Blower Co., The
The Gas Machinery Co.
D. McDonald & Co.
The P. H. & F. M. Roots Company.
Power
Connersville Blower Co., The
The P. H. & F. M. Roots Company.
Pressure
Connersville Blower Co., The
The P. H. & F. M. Roots Company.
Service
American Meter Co.
Lambert Meter Co.
Superior Meter Co.
Service Cleaner
American Meter Co.
John J. Griffin & Company.
Lambert Meter Co.
Safety Gas Main Stopper Co.
Superior Meter Co.
Tar
Connersville Blower Co., The
The P. H. & F. M. Roots Company.
Water
Connersville Blower Co., The
The P. H. & F. M. Roots Company.
Vacuum
American Meter Co.
Connersville Blower Co., The
The P. H. & F. M. Roots Company.

PURIFIERS
Bartlett-Hayward Co.
Cruse-Kemper Co.
Gas Engineering Co.
The Gas Machinery Co.
Isbell-Porter Company.
The Koppers Construction Co
Semet-Solvay Engineering Corp
Stacey Bros. Gas. Const. Co.
The Stacey Mfg. Co.
Riter-Conley Company.
United Engineers & Constructors Inc.
The Western Gas Construction Company.

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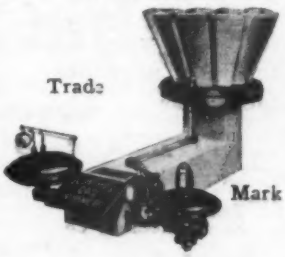

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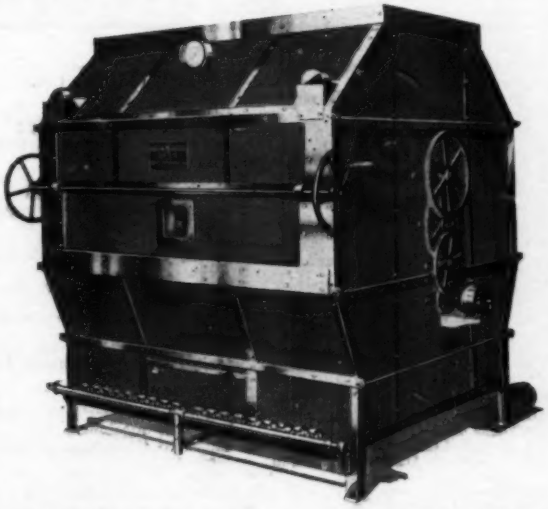

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See page 113 for advertisements of these products

PURIFYING MATERIALS
Alpha-Lux Company.
Connelly Iron Sponge & Governor Co.
The Gas Machinery Co.
Gas Purifying Materials Co., Inc
The Koppers Construction Co.
E. J. Lavino & Co.

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The Gas Machinery Co.
Semet-Solvay Engineering Corp.
Stacey Bros. Gas Const. Co.
The Stacey Mfg. Co.
United Engineers & Constructors, Inc.
The Western Gas Construction Company.

PYROMETERS
The Brown Instrument Co.
Maryland Meter Works
The Bristol Company.
The Western Gas Construction Company.
Indicating
The Gas Machinery Co.
Taylor Instrument Companies.
United Engineers & Constructors, Inc.
Radiation
Taylor Instrument Companies.
Recording
The Gas Machinery Co.
Taylor Instrument Companies.
United Engineers & Constructors, Inc.

RADIATORS
Gas Steam
American Gas Products Corp.

RANGES—GAS
American Stove Co.

RECORDERS—LIQUID LEVEL
The Brown Instrument Co.

RECORDING DEMAND METERS
The Brown Instrument Co.
Lambert Meter Co.
Maryland Meter Works

REFRACTORY CEMENTS
Botfield Refractories Company
The Gas Machinery Co.
General Refractories Co.
Improved Equipment—Russell Engineering Corp.
E. J. Lavino & Co.
Quigley Furnace Spec. Co. Inc.
United States Refractories Corp.

REFRACTORY GUN
Botfield Refractories Company
Quigley Furnace Spec. Co. Inc.

REFRACTORY LININGS
Alpha-Lux Company
Botfield Refractories Company
The Gas Machinery Co.
General Refractories Co.
Improved Equipment—Russell Engineering Corp.
Quigley Furnace Spec. Co. Inc.
United Engineers & Constructors Inc.
The Western Gas Construction Company
United States Refractories Corp.

REFRIGERATORS—GAS
Servel Sales, Inc.

REGULATORS
American Meter Co.
The Brown Instrument Co.
The Chaplin Fulton Mfg. Co.
Connersville Co., The
Connelly Iron Sponge & Governor Co.
Groble Gas Regulator Co.
Isbell-Porter Co.
Pittsburgh Equitable Meter Co.
Reynolds Gas Regulator Co.
Robertshaw Thermostat Co.
Smoot Engineering Corp.
The Sprague Meter Co.
Taylor Instrument Companies
Air Pressure
Time-O-Stat Controls Co.
Smoot Engineering Corp.
Coke Oven Suction Main
Smoot Engineering Corp.
Exhauster
Smoot Engineering Corp.
Furnace Pressure
Smoot Engineering Corp.
Oven
American Stove Co.
Steam Pressure
Smoot Engineering Corp.

REPAIR PARTS
Lambert Meter Co.

RESPERATING OUTFITS
Connelly Iron Sponge & Governor Co.

RETORTS
Horizontal and Inclined
Improved Equipment—Russell Engineering Corp.
Vertical
United Engineers & Constructors Inc.
West Gas Improvement Co.
Silica and Clay
Improved Equipment—Russell Engineering Corp.
The Gas Machinery Company
United States Refractories Corp.

RETORT CEMENT
Alpha-Lux Company
Botfield Refractories Company
The Gas Machinery Co.
Improved Equipment—Russell Engineer Corp.
Quigley Furnace Spec. Co. Inc.
United States Refractories Corp.

REVERSE FLOW GOVERNORS
Connelly Iron Sponge & Governor Co.

REYNOLDS
District
Reynolds Gas Regulator Co.

RUBBER AND JUTE JOINTING MATERIALS
Southwestern Pipe Joint & Eng. Co. Inc.

SAFES
Remington Rand Inc.

SAFETY VALVES
Connelly Iron Sponge & Governor Co.

SCREENS, ELECTRIC VIBRATING
C. W. Hunt Co. Inc.

SCRUBBERS
Bartlett Hayward Co.
Cruse-Kemper Company
Gas Engineering Co.
The Gas Machinery Co.
Isbell-Porter Co.
Semet-Solvay Engineering Corp.
Stacey Bros. Gas Const. Co.
The Stacey Mfg. Co.
West Gas Improvement Co.
The Western Gas Construction Company

SERVICE BOXES
The Stacey Mfg. Co.

SERVICE CLEANERS
American Meter Co.

SERVICE PLUG-RUBBER
Connelly Iron Sponge & Governor Co.
Safety Gas Main Stopper Co.

SHELVING (Steel)
Remington Rand Inc.

SKIP HOIST
C. W. Hunt Co. Inc.

SPECIFIC GRAVITY APPARATUS
American Meter Co.

SPECIFIC GRAVITY GAUGES
Alpha-Lux Company.

SPONGE
Alpha-Lux Company
Connelly Iron Sponge & Governor Co.
Gas Purifying Materials Co. Inc.

SPRAYS, for Water Gas Machines
Semet-Solvay Engineering Corp.

STACEY BULLETT for High Pressure Storage
Stacey Bros. Gas Construction Co.

STATION METERS (See Meters Station)

STEAM ACCUMULATORS (See Accumulators—Steam)
The Gas Machinery Co.
Smoot Engineering Corp.
United Engineers & Constructors Inc.
The Western Gas Construction Company

STOPPERS
Safety Gas Main Stopper Co.

STRAINERS—GAS, STEAM, WATER
Andale Company

STREET DEPT. EQUIPMENT
American Meter Co.
Connelly Iron Sponge & Governor Co.
Safety Gas Main Stopper Co.

STREET LAMPS
Welsbach Street Lighting Co.

SULPHUR AND AMMONIA TEST (Apparatus)
American Meter Co.

SYSTEMS
Combustion Control
The C. M. Kemp Mfg. Co.
Smoot Engineering Corp.
Hot Water Heat Control
The Cleveland Heater Company
Time-O-Stat Controls Co.

TABULATING MACHINES
Remington Rand, Inc.

TACHOMETERS
Brown Instrument Co., The
The Bristol Company.
Consolidated Ashcroft Hancock Co., Inc.
Precision Thermometer & Instrument Company.

TANK REGULATORS
Reynolds Gas Regulator Co.

TANKS
Bartlett-Hayward Co.
Cruse-Kemper Company.
Gas Engineering Co.
Semet-Solvay Engineering Corp.
A. O. Smith Corp.
The Stacey Mfg. Co.
The Western Gas Construction Company.
Gas, Oil, Storage
Stacey Bros. Gas Const. Co.
High Pressure
The Gas Machinery Co.
Riter-Conley Company.
Stacey Bros. Gas Const. Co.

TAPE SOAP—BINDING
Safety Gas Main Stopper Co.

TAR DISTILLING PLANTS
Indugas, Inc.
Gas Engineering Co.
The Gas Machinery Co.
Semet-Solvay Engineering Corp.
West Gas Improvement Co.

TAR DISPLACEMENT SYSTEM
The Gas Machinery Co.

TAR EXTRACTORS
Bartlett-Hayward Co.
Gas Engineering Co.
The Gas Machinery Co.
Isbell-Porter Co.
Semet-Solvay Engineering Corp.
West Gas Improvement Co.
The Western Gas Construction Company.
United Engineers & Constructors, Inc.

TEMPERATURE CONTROLING DEVICE—Oven
American Stove Co.
The Bristol Company.
Brown Instrument Co., The
Consolidated Ashcroft Hancock Co., Inc.
Robertshaw Thermostat Co.
Tagliabue Mfg. Co., C. J.
Taylor Instrument Companies.
Time-O-Stat Controls Co.

TESTING APPARATUS, GAS
American Meter Co.
Pittsburgh Equitable Meter Co.
Precision Thermometer & Instrument Company.

THERMOMETERS
American Meter Co.
The Bristol Company.
Brown Instrument Co., The
Lambert Meter Co.
D. McDonald & Co.
Metric Metal Works.
Precision Thermometer & Instrument Company.
Superior Meter Co.
Taylor Instrument Companies.

THERMOSTATS
The Bristol Company.
Brown Instrument Co., The
The Cleveland Heater Company.
Consolidated Ashcroft Hancock Co., Inc..
Precision Thermometer & Instrument Company.
Robertshaw Thermostat Co.
Taylor Instrument Companies.
Time-O-Stat Controls Co.

TOASTERS
American Gas Products Corp.
Savory Co., Inc.,

TOOLS
Semet-Solvay Engineering Corp.

TORCHES—WELDING AND CUTTING
Oxweld Acetylene Co.
Union Carbide & Carbon Co.

TRAPS—STEAM
Consolidated Ashcroft Hancock Co., Inc.,

TRENCH DIGGERS
The Cleveland Trencher Co.

TUBES, BOILER
National Tube Co.
Pittsburgh Steel Products Co.

TUBES
Seamless Steel
Pittsburgh Steel Products Co.

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Remington Rand, Inc.

U GAUGES
American Meter Co.
Connelly Iron Sponge & Governor Co.
The Gas Machinery Co.
Lambert Meter Co.
Pittsburgh Equitable Meter Co.
Precision Thermometer & Instrument Company.
Safety Gas Main Stopper Co.
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Taylor Instrument Companies.

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American Meter Co.
The Bristol Company.
Brown Instrument Co., The
Consolidated Ashcroft Hancock Co., Inc.,
Lambert Meter Co.
Pittsburgh Equitable Meter Co.
Precision Thermometer & Instrument Company.
Taylor Instrument Companies.

VALVES
Bartlett-Hayward Co.
Consolidated Ashcroft Hancock Co., Inc.,
Darling Valve and Manufacturing Co.
The Gas Machinery Co.
Groble Gas Regulator Co.
C. W. Hunt Co., Inc.
The Ludlow Valve Mfg. Co.
Pittsburgh Equitable Meter Co.
Semet-Solvay Engineering Corp.
High Pressure Special
Smoot Engineering Corp.
Time-O-Stat Controls Co.

VALVES—BY-PASS
The P. H. & F. M. Roots Company.

VALVES—DIAPHRAGM
The P. H. & F. M. Roots Company.
Time-O-Stat Controls Co.

VALVES & PITTINGS
Darling Valve and Manufacturing Co.
The Gas Machinery Co.
Pittsburgh Equitable Meter Co.
The P. H. & F. M. Roots Company.
Semet-Solvay Engineering Corp.
The Stacey Mfg. Co.
The Western Gas Construction Company.
Time-O-Stat Controls Co.

VALVES—HUNTOON
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Time-O-Stat Controls Co.

VALVES—RELIEF
The P. H. & F. M. Roots Company.

VALVES—3 Way
Semet-Solvay Engineering Corp.

WASHING MACHINE
Perco-Steril Machine Corpn.

WASTE HEAT BOILERS
(See Boilers)
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Improved Equipment-Russell Engineering Corp.
United Engineers & Constructors, Inc.
West Gas Improvement Co.
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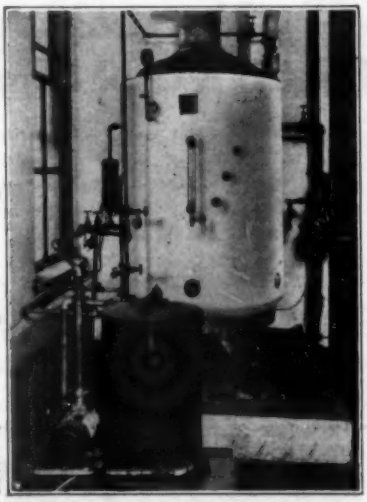

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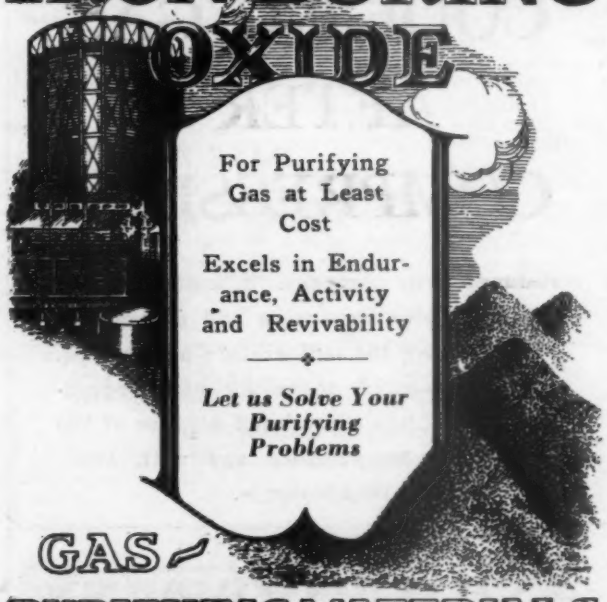

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Positively the last word in the practical and efficient combustion of the gases in which air and gas are mixed to the highest degree of perfection. Easily and quickly installed. Can be used on any coal-fired boiler or hot air furnace.

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ADACHROME
Fines
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Gun

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"GAS ENGINEER." Gas Apparatus Manufacturing company desires services of technical man; age about 30 to 35 years; must be good water gas operator and be able to start up new equipment. Give experience and salary desired. Box No. 696, c/o American Gas Journal, 53 Park Place, New York City.

Automatic Control Engineer—College graduate with several years experience in automatic temperature control field. Knowledge of pyrometer and broad training in applications desired for engineering work in further applications of present instruments. Permanent position. Give full details of experience and training. Kindly enclose recent photograph or snapshot. Personnel Dept. Leeds and Northrup Co., 4901 Stenton Ave. Phila, Pa.

WANTED

WANTED: "Young men with engineering and operating experience in the Distribution Division of the Gas Industry, to become Sales Engineer for long established manufacturer of recording instruments for pressure, temperature, and automatic controllers who have had both industrial experience and scientific education, and who are free to travel through the great industrial districts. Highest character references required. Write, stating experience, age and salary desired." Address Box No. 976, c/o American Gas Journal, 53 Park Place, N. Y. C.

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HIGH PRESSURE

$5.00 Each

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$5.00 Each

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Consulting Engineer

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American Light & Traction Company

DIVIDEND NOTICE

The Board of Directors of AMERICAN LIGHT & TRACTION COMPANY, at a meeting held July 2, 1929, declared a DIVIDEND of one and one-half per cent. (1-½%) on the Preferred Stock, and a DIVIDEND of two and one-half per cent. (2-½%) on the Common Stock, both payable August 1, 1929, to stockholders of record at the close of business July 12, 1929.

The transfer books will not be closed.

JAMES LAWRENCE, Secretary.

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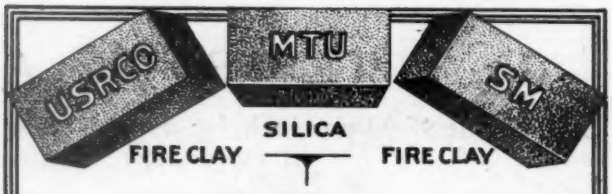

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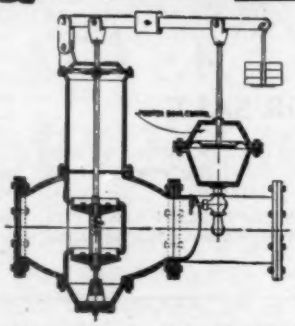

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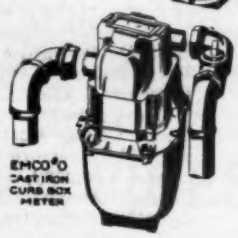

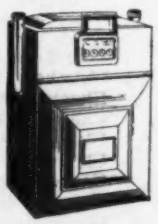

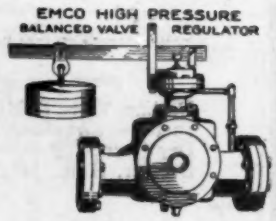

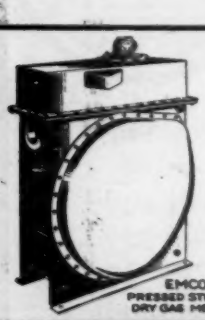

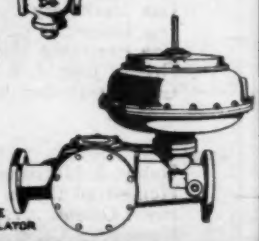

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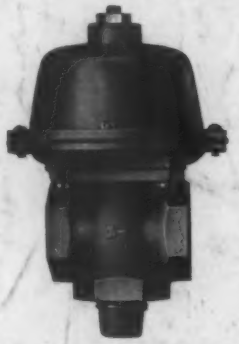

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